PRINTING PRODUCTION

formerly PRINTING EQUIPMENT

Printing Production Strategists Confer (SEE PAGE 5)

Study of Walking Distances in the Composing Room

PIA Executives Seek Better Plant Practices

Halftone Making for Engraving and Offset

Pass On: _____

SERVING PRINTING INDUSTRY
PRODUCTION EXECUTIVES EXCLUSIVELY

practical men agree the Star Quadder is . . .

"DEPENDABLE AND EFFICIENT..."

The Oregonian
ESTABLISHED 1850
DAILY AND SUNDAY PORTLAND 1, OREGON

November 17, 1958

Mr. Quido E. Herman
Star Parts, Inc.,
1620 W. Pico Blvd.,
Los Angeles 15, Calif.

Dear Mr. Herman:

At the Portland Oregonian we have eight STAR Quadders, six of which are used for tape operation using quadder signals on tape for quadding. This permits classified to be set at maximum speed.

In almost a year of operation, 15 hours per day, at high speed, we have found the STAR Quadder to be dependable and efficient.

Very truly yours,
F. J. Moyer
F. J. Moyer
Superintendent
Composing Room

Dependable and efficient, however, is only part of the Star Quadder story . . . for when you install a Star Quadder on any line casting machine that handles an average of 2 hours a day of quadded composition, it will pay for itself, in saving of production time, in about a year . . . but why not get the complete story by writing for further information today.

Precision TRADE ★ MARK Parts ®

STAR PARTS, Inc.
SOUTH HACKENSACK, N. J.

BRANCH: 1327 BROADWAY, KANSAS CITY, MO. AGENCIES: CHICAGO • MINNEAPOLIS • LOS ANGELES • DENVER • SO. ACTON, MASS. • CANADA: PRINTING MATERIAL LTD. AND AGENTS OVERSEAS

For More Information Circle 167 on Reader Service Card

announcing . . . A NEW, IMPROVED MODEL of the STA-HI MASTER FORMER . . .

for more uniform processing of packless mats and hand-pack standard mats

This New, Improved Model Master Former is Sta-Hi's answer to the newspaper industry's need for a machine to properly process "packless mats" of all makes, to also improve the drying and forming of hand-packed mats, and to be used interchangeably between the two types of mats.

Here are some of the many field-tested advancements in this improved machine:

HEAT-SAVER LATCH on Vacuum Chamber — providing more constant control of heat in the machine and more even heat diffusion . . . HEAT DISTRIBUTION PLATES —of perforated aluminum, in both Base Heater and Chamber Heater, giving more uniform flow of heat over entire surface of mats . . . NEW ELECTRIC RELAY SYSTEM—making for more accurate thermostatic heat control and longer thermostat life. . NEW DESIGN FOLLOW BARS — recessed, for improved "sealing" and "following" of mats during shrinkage . . . FINE SCREEN VACUUM PLATE—for better vacuum-forming of either packless or standard mats . . . IMPROVED AIR FILTER — minimizing accumulation of foreign matter in vacuum system to assure maximum efficiency . . . NEW TYPE PRECISION TIMERS — long range (up to 20 minutes), easily observed through open "ports" in new front panel and quickly adjustable to meet requirements . . . NEW EXHAUST MANIFOLD — simplifying the "venting" of exhaust discharge from the stereotype room. . .

STA-HI CORPORATION

235 WEST WASHINGTON BOULEVARD • WHITTIER, CALIFORNIA

For More Information Circle 165 on Reader Service Card

why do the best men in the shop prefer Ansco?

Because Ansco films have characteristics that can't be matched by any other products.

Ansco superior line and dot formations do mean that significant improvement in plate quality are routine with Ansco materials.

Take Ansco Reprolith Ortho Type C for example. This superb emulsion is designed with perfect orthochromatic balance so desirable where colored copy is involved. In addition, careful filtration saves hours of handwork on the negatives.

Ansco Reprolith Ortho Type C is ideally processed in Ansco Reprodol Developer, a long life, clean working formula specifically compounded for maximum density in both line and half tone work. Try both Reprolith Ortho Type C and Reprodol Developer today. Ansco, Binghamton, N. Y. A Division of General Aniline & Film Corp.

Ansco

Reprolith

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it's not true...

★ That Sheridan bindery machines are built to suit the requirements of only the largest edition, publication or trade binders.

★ Nor is it true that the cost of Sheridan equipment places it beyond the reach of the smaller bindery.

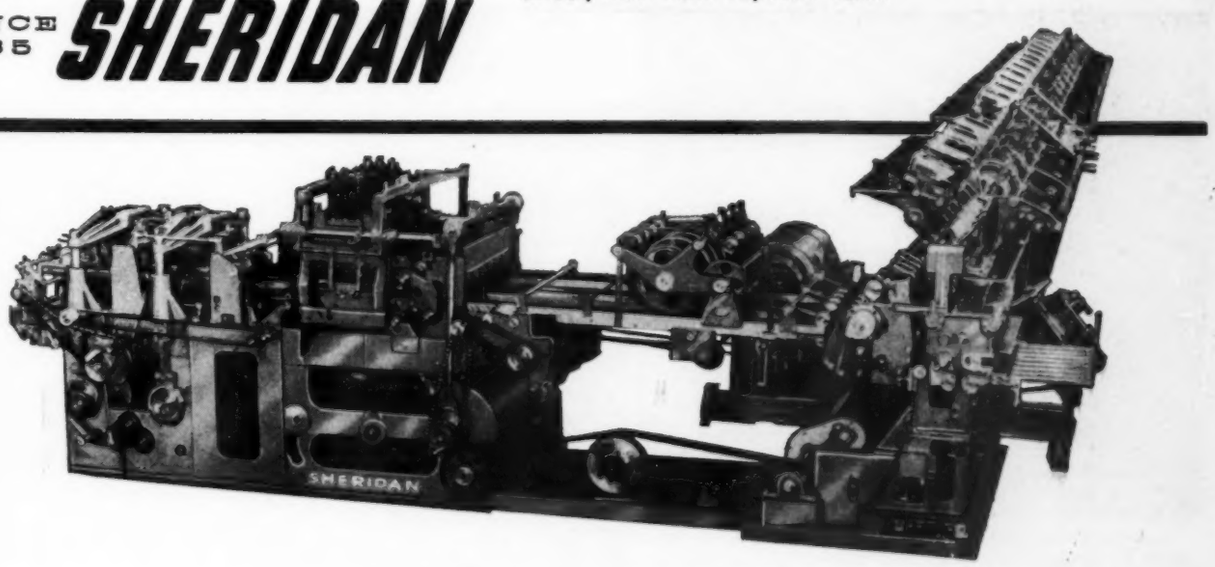
THE TRUTH IS ...

★ That Sheridan machines are built to satisfy the needs of all binderies, small or large, short run or long. The Sheridan automatic saddle binding equipment, for example, is available in a wide variety of combinations and sizes based on continuing industry-wide studies of bindery equipment and requirements.

★ Sheridan automatic saddle binding equipment is priced right in comparison with any other similar machinery available . . . and only Sheridan offers the added values of high hourly production for lowest cost/thousand, of a heavy-duty stitcher for higher product quality and lower operating costs, of quick-set adjustments for minimum change-over time that make short runs practicable and profitable.

So . . . before you purchase any equipment, call in your Sheridan representative. Get all the facts. Let him show you the right Sheridan combination for your needs . . . the way to increase profits. The T. W. & C. B. Sheridan Co., 220 Church Street, New York 13, New York.

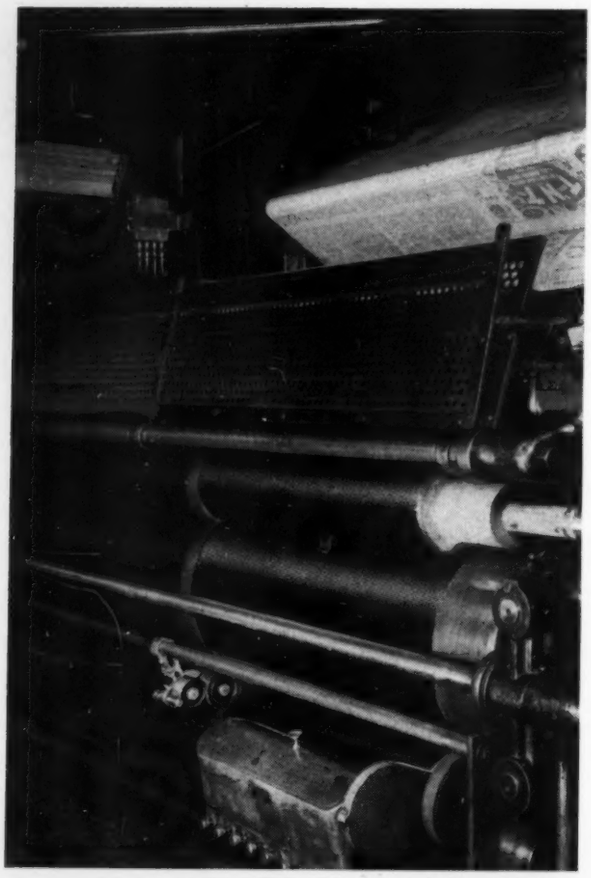
SINCE 1835 **SHERIDAN**

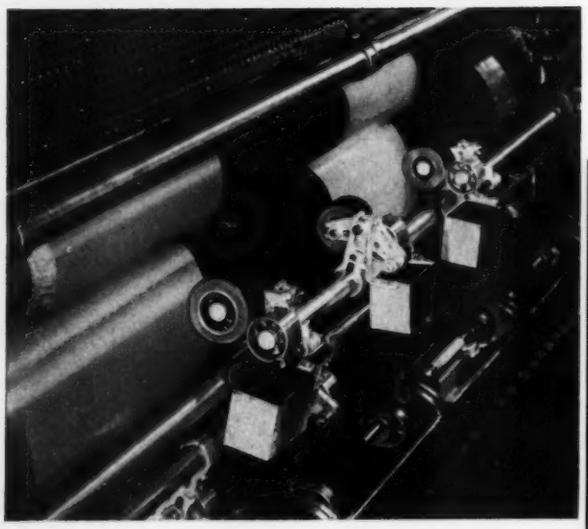


For More Information Circle 57 on Reader Service Card

The DAYCO COMBINATION... for the Finest in ROP Color

Dayco Tru-Set Rollers and Color Separators offer quality and economy





Dayco Tru-Set Rollers combine the day-in, day-out durability you expect in your regular edition rollers with a velvety smooth surface that's perfect for laying any ink. No need to change inks, paper, plates or your Dayco rollers. For "quick-as-can-be" ROP color, with "no guess-work" color control, simply adjust your Color Separators and you're set to go.

To add to their economical maintenance, Dayco Rollers have just the right degree of hardness, a resiliency that protects against marking or column scoring, a high tensile surface and no excessive swelling. And they're fire-resistant for greater pressroom safety.

Call your Dayco representative and order a set of Dayco Tru-Set Rollers with this assurance . . . either you're satisfied or we'll make good. And, for better performance from your new presses, insist that they come fully equipped with Dayco Rollers.

You can contact your Dayco representative by writing or wiring the Dayton Rubber Company, Dayco Division, Dayton 1, Ohio.

You can shift your color splits in minutes with simple, easy-to-adjust Dayco Color Separators . . . and print as many as 8 extra black and white pages per press without cutting rollers.

Dayton Rubber

THE DAYTON RUBBER COMPANY, Dayton 1, Ohio

West Coast Distributors: Tillicum Rubber Company, Lacey, Washington; Far West Ink Co., Seattle, Washington; Walter Lawrence Co., Los Angeles; George Shively Co., San Francisco; Albert Lodymon, Dallas, Texas

DAYCO ROLLERS . . . for Offset, Letterpress, Newspaper, Corrugated Boxboard, Gravure, Flexography, Coating, Graining, Steel Mills.
Dayco Offset Blankets, Dayco Fountain Dividers, Dayco Color Separators.

For More Information Circle 48 on Reader Service Card

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JANUARY '59

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JANUARY 1959
VOL. 89, NO. 4

PRINTING PRODUCTION

formerly PRINTING EQUIPMENT *Engineer*

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in all major processes of the Graphic Arts industry.

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Member Publications BPA Business Audit

Accepted as Controlled Circulation Publication at Cleveland, Ohio.

OUR COVER: Printing production strategists in the plant of The Reynolds & Reynolds Co., Dayton, O., business forms printers, are composed of the 17 key people pictured on this month's cover. The scene is one of the company's regularly held weekly production meetings at which specific problems are discussed. How to conduct and the importance of such meetings are the subject of a story on P. 29 of this issue by Gordon R. Rohde, R&R vice president, who is shown at the spoilage chart in the picture. Typical of the personnel who participate in these meetings are superintendents, foremen, production control supervisor, supervisor of estimating, supervisor of order writing and management engineer. In background is photographic mural of production scenes—appropriate to the mood of the meeting.

LETTERS

TO THE EDITORS

EDITOR'S NOTE: The following letters refer to the Plant Planning and Improvement Issue of PRINTING PRODUCTION which is published annually in March. Watch for the 1959 issue which will again include many examples of how printing plants have solved space and expansion problems. Also, there will be other features of particular interest to companies planning new plants or an expansion of present facilities.

Help for Plant Planners

Our plans (for a new plant) began by visitations to modern plants in our area and by careful study of the plans presented in your magazine's last Plant Planning and Improvement Issue.

This issue of your magazine was a tremendous help. It offered an opportunity for us to give deliberate study to many different plants in regard to facilities, costs, layout and workflow possibilities. In addition to housing our present equipment we gave much consideration to space for future expansion, addition of larger replacement machinery, and ample space for parking and unloading.

Your magazine certainly deserves a great deal of credit for the fine work you are doing for the Graphic Arts industry.

P. F. Good
The Lawhead Press, Inc.
Athens, O.

Your magazine played a big part in the formulation of our moving program. The article on the Wm. Feather Co., Cleveland, started the ball rolling as we realized the similarity between their business and ours. The successful completion of their move was of great value to us and acted as a stimulant for our new program.

Thomas M. Sheridan,
Assistant to the President
American Bank Stationery Co.
Baltimore, Md.

The entire Plant Planning and Improvement Issue was most informative and should rate as "must" reading by every printing executive. We were highly complimented that our new plant, even though small in size, was included in the new plant section. Thank you for giving us a "printer's magazine."

Irvin Yaffe
N. S. Yaffe Printing Co.
Omaha, Neb.

We were particularly impressed with the reproduction of our shop floor plan in your Plant Planning and Improvement Issue. This was done in a most comprehensive manner. In fact, we were particularly pleased with the entire handling of the story.

Thos. P. Henry, President
The Thos. P. Henry Co.
Detroit

We find the articles in your magazine relative to printing plants and their layout to be most interesting.

Jord H. Jordan, President
Package Products Co., Inc.
Charlotte, N. C.

Appreciates the Help

We are appreciative of the help obtained from the many fine articles and down-to-earth technical and management aids made available through your excellent magazine. I have for many years looked eagerly for the next issue and read every page diligently. Much knowledge has been derived from this source.

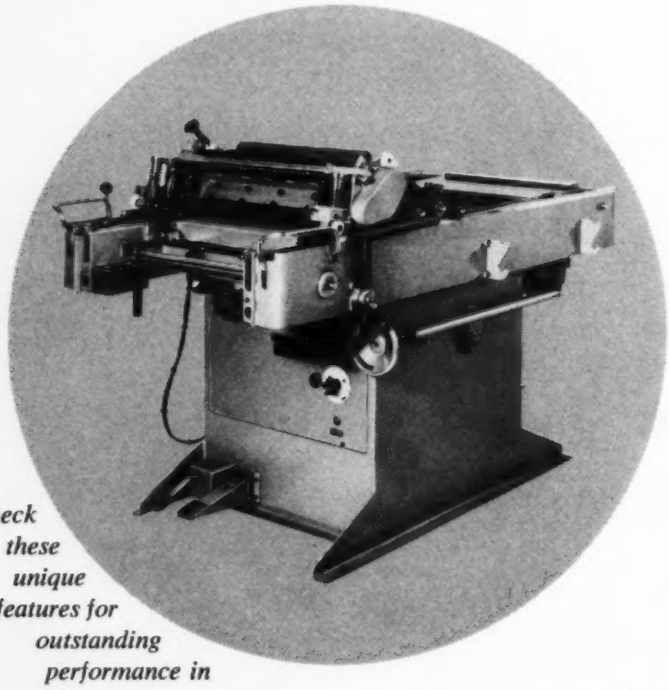
Jarold S. Joseph,
Executive Vice President
The Adco Press, Inc.
Houston, Tex.

Cancels Gratefully

Please cancel my name from your mail list. I have retired after 44 years with the *Daily Post*. First, I want to thank you for the many years I have received your good magazine, and second for the useful information and help in determining which were the best products on the market.

Neil Giles
Post Standard Pub. Co.
Butte, Mont.

SPEED • VERSATILITY • PERFORMANCE with the KALLE 17 semi-automatic FLATBED OFFSET PRESS



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Ludlow 52-LIC Florentine, 14 to 36 point

Coronet Light

Ludlow 42-MIC Coronet, 14 to 72 point

Coronet Bold

Ludlow 42-BIC Coronet Bold, 14 to 72 point

Mayfair Cursive

Ludlow 31-MIC Mayfair Cursive, 14 to 72 point

Admiral Script

Ludlow 49-BIC Admiral Script, 14 to 48 point

Mandate

Ludlow 36-BIC Mandate, 14 to 72 point

Hauser Script

Ludlow 38-HIC Hauser Script, 18 to 72 point

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Here are eight Ludlow Scripts to add freshness to the work of good typographers. The dignity of Formal Script—the old Italian charm of Florentine—the regal effect of the Coronets—the outstanding style of Admiral—the refined boldness of Mayfair and Mandate—and the uniqueness of Hauser all contribute to fine modern typesetting. Specimen pages will show you what they offer the printer and will be sent free to you if you request them.

Ludlow Typograph Company . . . 2032 Clybourn Avenue, Chicago 14, Illinois

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why COMPROMISE ?

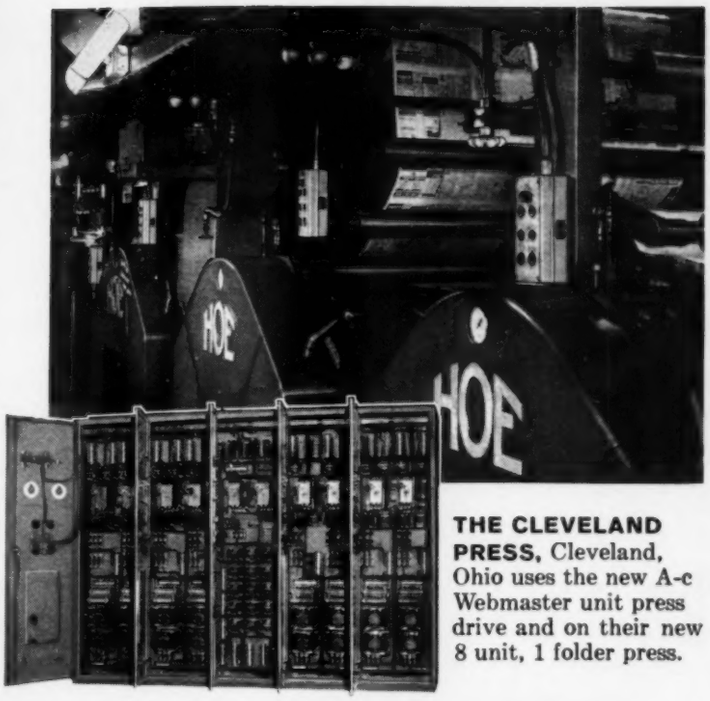
THERE'S A CUTLER-HAMMER NEWSPAPER PRESS DRIVE BUILT TO MEET YOUR SPECIFIC REQUIREMENTS

Experienced newspaper men know there are many factors to be considered in the selection of the proper press drive for each press installation. Recognizing this fact that there *isn't* any one type of drive which can *perfectly* serve the entire newspaper industry, Cutler-Hammer has developed the *first* and *only* complete line of newspaper press drives and control. Now Cutler-Hammer offers the A-c Webmaster - and D-c Webmaster Drives for Unit Type Presses and both A-c and D-c Group Drives for single and two motor presses.

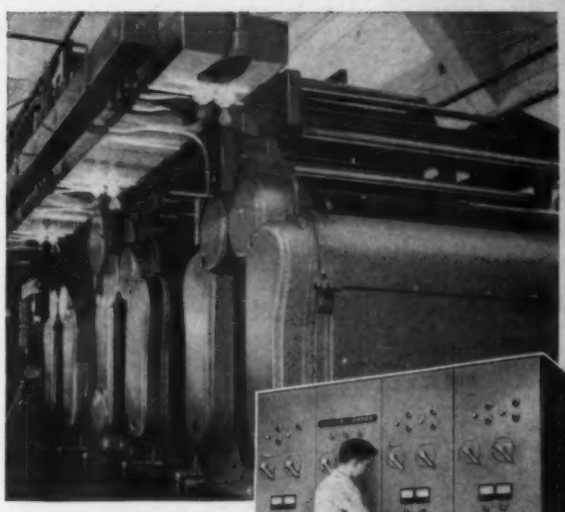
If you are planning a new press plant or modernizing existing facilities, no longer is it necessary to COMPROMISE in the selection of the press drives to be installed. Cutler-Hammer will provide the right type and size drive selected on the basis of a thorough analysis of your particular operational requirements, plant power characteristics, future plans, etc.

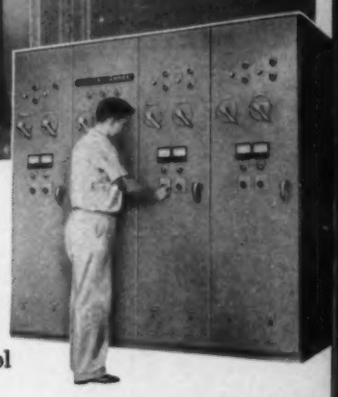
Get all the facts today, write . . .

Dept. A277
Cutler-Hammer Inc.
Milwaukee 1, Wis.



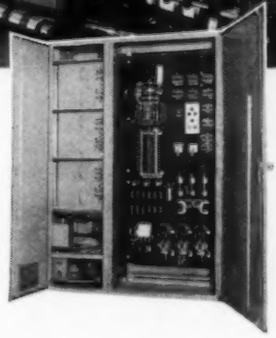
THE CLEVELAND PRESS, Cleveland, Ohio uses the new A-c Webmaster unit press drive and on their new 8 unit, 1 folder press.



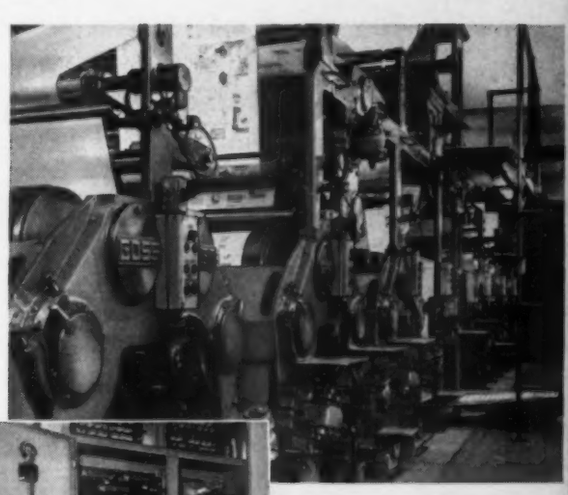


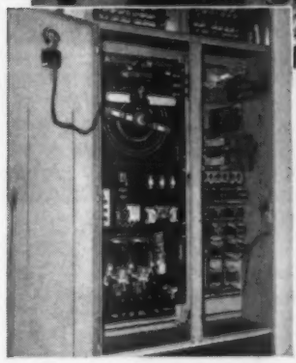
THE EASTON EXPRESS, Easton, Pa. will equip their new press plant with a Cutler-Hammer D-c Webmaster Unit Press Drive and Control system.

Look to CUTLER-HAMMER for the first and only complete line of Newspaper Press Drives and Control



THE LUDINGTON DAILY NEWS, Ludington, Mich. uses a Cutler-Hammer A-c 2-motor Group Drive and Control on their press.





THE BELOIT DAILY NEWS, Beloit, Wis. selected 2 single motor D-c Group Drives for their new 6 unit, 1 folde press installation.

CUTLER-HAMMER CONTROL C-H

CUTLER-HAMMER

Cutler-Hammer Inc., Milwaukee, Wis. • *Division:* **Airborne Instruments Laboratory.** • *Subsidiary:* **Cutler-Hammer International, C. A.**

Associates: Canadian Cutler-Hammer, Ltd.; Cutler-Hammer Mexicana, S. A.; Intercontinental Electronics Corporation, Inc.

For More Information Circle 47 on Reader Service Card

MEETINGS for the PRINTING INDUSTRY

American Photoengravers Assoc. — 1959 Conv., Hotel Statler-Hilton, Dallas, Tex., Oct. 19-21. Exec. Secy. Frank J. Schreiber, 166 W. Van Buren St., Chicago 4.

ANPA Mechanical Conf.—1959 Conf., Hotel Morrison, Chicago, June 21-25. Mgr. Richard E. Lewis, ANPA Mechanical Dept., 750 Third Ave., New York 17, N. Y.

Book Manufacturers' Institute — 1959 Conf., Hotel Greenbrier, White Sulphur Springs, W. Va., Oct. 21-24. Secy. Miss A. G. Watson, 25 W. 43rd St., New York 36, N. Y.

Educational Graphic Arts Exposition—Coliseum, New York, N. Y., Sept. 6-12, 1959. Gen. Mgr. A. E. Giegengack, 5600 Massachusetts Ave., N.W., Washington 16, D. C.

Fifth District Craftsmen's Conf.—1959 Conf., Hotel Miami, Dayton, O., May 22-23. Secy.-Treas. George W. Thompson, Toledo Colortype Co., 1711 Jefferson Ave., Toledo, O.

Flexographic Technical Assoc. — Exec. Secy. Julian Ross, 220 W. 42nd St., New York 36, N. Y.

Graphic Arts Assoc. Executives — 1959 Conv., Hotel Plaza, New York, N. Y., Sept. 4-5. Secy.-Treas. William H. Gary, Managing Director, Printing Industry of Twin Cities, Inc., 2645 University Ave., St. Paul 14, Minn.

Gravure Technical Assoc.—1959 Conv., Drake Hotel, Chicago, Mar. 6-8. Exec. Secy. Edward S. St. John, Room 4800, 30 Rockefeller Plaza, New York 20, N. Y.

Great Lakes Mechanical Conf.—1959 Conf., Hotel Statler, Detroit, Jan. 18-20. Secy.-Treas. Don Clark, Stereotype Supt., Grand Rapids (Mich.) *Press*.

Illinois Newspaper Mechanical Conf.—Secy.-Treas. Arthur Kramer, Joliet (Ill.) *Herald-News*.

Intl. Assoc. Electrotypers & Stereotypers—1959 Conf., Hotel Biltmore, New York, N. Y. Sept. 7-10. Exec. Secy. Floyd C. Larson, 758 Leader Bldg., Cleveland 14.

Intl. Assoc. of Printing House Craftsmen—1959 Conv., Hotel Statler, New York, N. Y., Sept. 5-9. Exec. Secy. Pearl E. Oldt, 411 Oak St., Cincinnati 19, O.

Intl. Graphic Arts Education Assoc. — 1959 Conf., University of Colorado, Boulder, Colo., Aug. 2-7. Exec. Secy. Samuel M. Burt, 5728 Connecticut Ave., N.W., Washington 15, D. C.

Intl. Printers Supply Salesmen's Guild—1959 Conv., Hotel Statler, New York, N. Y., Aug. 28-Sept. 1. Secy. Charles S. Tompkins, Tompkins Printing Equipment Co., 1040 W. Grand Blvd., Detroit 8.

Intl. Typographic Composition Assoc.—1959 Conv., Hotel Park Sheraton, New York, N. Y. Sept. 9-12. Exec. Secy. W. E. Switzer, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conf.—Secy.-Treas. Paul F. Kamler, Mechanical Supt., Clinton (Ia.) *Herald*.

Kansas-Missouri Newspaper Mechanical Conf.—Kansas Gen. Mgr., Larry Miller, Kansas Press Assoc., 701 Jackson St., Topeka, Kans. Missouri Secy-Treas. William A. Bray, Missouri Press Assoc., 115 Walter Williams Hall, Columbia, Mo.

Lithographers and Printers National Assoc.—1959 Conv., Hotel Greenbrier, White Suhphur Springs, W. Va., Apr. 13-16. Exec. Dir. Oscar Whitehouse, 1025 Connecticut Ave., N.W., Washington 6, D. C.

Mid-Atlantic Newspaper Mechanical Conf.—1959 Conf., Shelburne Hotel, Atlantic City, N. J., Mar. 12-14. PNPA General Mgr. Richard Dew, 2717 N. Front St., Harrisburg, Pa.

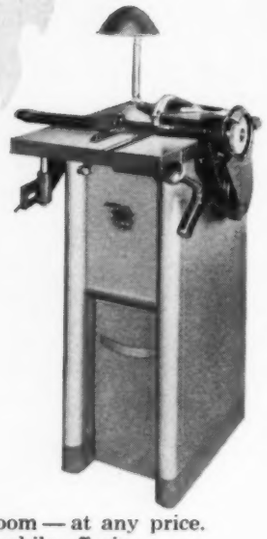
National Assoc. of Litho Clubs—1959 Conv., Twin Cities (Minneapolis-St. Paul, Minn.), June 11-13. Exec. Secy. Fred A. Schulz, Buckbee Mears Co., Toni Building, St. Paul 1, Minn.

National Assoc. of Photo-Lithographers—1959 Conv., Hotel Muehlebach, Kansas City, Mo., Nov. 18-21. Exec. Dir. Walter E. Soderstrom, 317 W. 45th St., New York 36, N. Y.

Prove this "Year's Best Buy" in Your Composing Room . . .

Morrison Model 45 Saw Trimmer

. . . with "Trigger Speed" Saw Blade Adjustment



● The exclusive Pistol Grip saw blade adjustment alone, on this Model 45 Saw Trimmer, makes it one of today's outstanding time-savers in any composing room — at any price. Yet the "45" costs *less* than most trimmers, while offering *more* in versatility, speed, accuracy, safety. And it is available with all these popular Morrison accessories — 75-pica gauge and Behind-the-Gauge Workholder; 135-pica extension gauge; standard miter gauge; right and left-hand miter vise; saw grinder with dished emery wheel; trimmer grinder; flat emery wheel and guard; universal saw blade assembly with head and trimmers; adjustable light; waste receptacle, motor and tools.

You'll save time and labor in your composing room — do more accurate work at less cost — with the new Morrison Model 45 Saw Trimmer.

THE Morrison COMPANY
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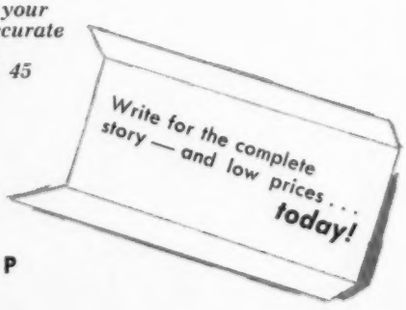
Milwaukee 12, Wisconsin



For More Information Circle 127 on Reader Service Card

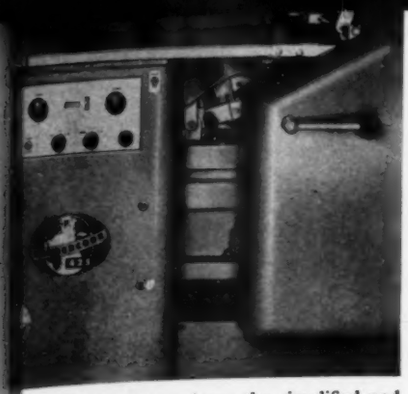
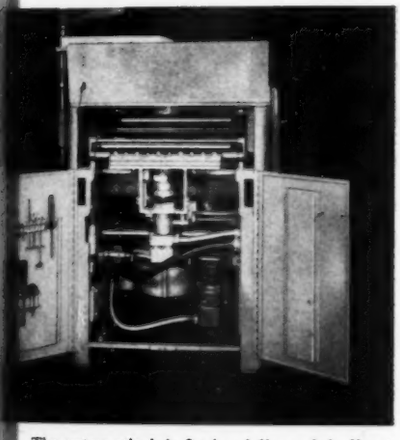


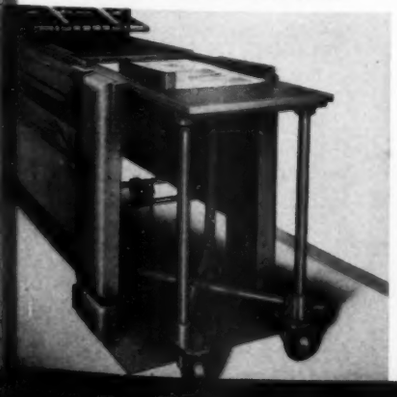
Illustration above shows the simplified and accessible controls—without foot pedals.

The rubber covered safety bar, visible just below the sheet delivery, will stop the press when it strikes anything on the bed over type-high.



The automatic ink feed—delivers ink direct from a standard 1-Lb. ink can.

To bring the press bed up to the height of newspaper makeup trucks, iron raising blocks are provided, as shown below. The height of the makeup truck may be further adjusted by means of a lever controlled floor plate.



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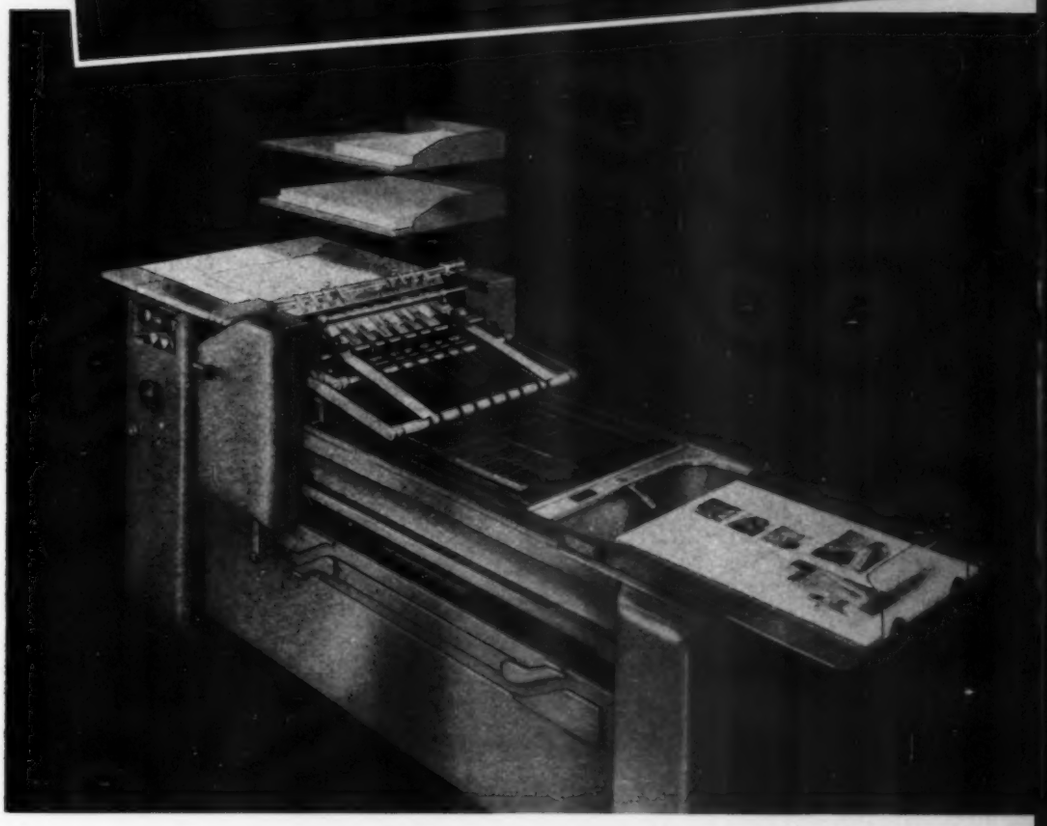
VANDERCOOK 425

PAGE SAFE ELECTRIC PROOF PRESS



A safe, high speed machine . . . capable of producing up to 1500 high grade impressions per hour on sheets up to 24¾″ x 27″.

The Vandercook 425 is a rugged, compact machine with many time and labor saving features including (1) a safety stop which instantly stops the press if anything over type-high is on the bed, (2) a speed adjustment of 500 to 1500 per hour by means of motor adjusted Variable Speed Pulley, (3) the Vandercook Ink Feed which automatically feeds ink in any desired amount from a standard 1-Lb. ink can, (4) no foot pedals, but complete electric controls including the cylinder trip, (5) a static eliminator is standard equipment, (6) an efficient delivery which deposits sheets at the end of the press, and (7) in spite of its ample capacity, requires only 3′2″ x 8′9″ floor space without makeup truck, and only 3′2″ x 9′2″ with the makeup truck.

WRITE . . . FOR MORE DETAILED INFORMATION

Our 50th Year

VANDERCOOK & SONS, INC.

General Offices, Research Laboratory, Demonstration Room & Factory
3601 W. Touhy Ave., Chicago 45, Ill. Phone: ROgers Park 1-2100

Eastern Sales and Service
205 W. 34th St., New York 1, N.Y.
Phone: BRyant 9-6270

In Canada
Sears Limited

Western Sales and Service
3156 Wilshire Blvd., Los Angeles 5, Calif.
Phone: DUnkirk 8-9931

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National Paper Trade Assoc.—1959 Meeting, Waldorf Astoria Hotel, New York, N. Y., Apr. 1-3. Secy. J. H. Londergan, 220 E. 42nd St., New York 17, N. Y.

National Printing Equipment Assoc., Inc. Secy. James E. Bennet, 140 Nassau St., New York 38, N. Y.

National Safety Council Printing and Publishing Section—1959 Meeting, Hotel Conrad Hilton, Chicago, Oct. 20-24. Staff Rep. Harry C. Johnson, National Safety Council, 425 N. Michigan Ave., Chicago 11.

New England Composing Room Executives Assoc. — Secy. Lewis R. Greene, Westerly (R. I.) *Sun.*

New England Newspaper Mechanical Conf.—1959 Conf., Hotel Statler-Hilton, Boston, Mass., Oct. 17-18. Secy.-Treas. Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day.*

Newspaper ROP Color Conf.—Secy. Arthur Brashears, American Assoc. of Newspaper Representatives, 141 E. 44th St., New York, N. Y.

New York State Capital District Mechanical Conf.—1959 Conf., Hotel Ten Eyck, Albany, N. Y., Jan. 17-18. Dir. Floyd Laurenty, Albany (N. Y.) *Times-Union.*

Northwest Mechanical Conf.—1959 Conf., Hotel St. Paul, St. Paul, Minn., Mar. 7-9. Secy.-Treas. Ralph N. Carson, Linecasting Instructor, Dunwoody Industrial Institute, 818 Wayzata Blvd., Minneapolis, Minn.

Clevelander Equips Plant—Lester Schonberg (left), president, Schonberg Printing Co., Cleveland, O., purchased a 46 in. Lawson Electronic Spacer Cutter. Schonberg is shown with Roland J. Lachapelle, Lawson vice president and New England sales manager. Schonberg has also purchased two Miehle No. 29 offset presses and assorted typographical equipment.

Pacific Newspaper Mechanical Conf.—1959 Conf., Hotel U. S. Grant, San Diego, Calif. Sept. 25-27. Secy. Fred Moyer, Sr., 6630 Mayflower Ave., Bell, Calif.

Packaging Institute Assoc.—1959 Meeting, Hotel Statler, New York, N. Y., Nov. 16-18. Exec. Dir. Chas. A. Feld, 342 Madison Ave., New York 17, N. Y.

Printing Industry of America—1959 Conv., Hotel Waldorf-Astoria, New York, N. Y., Sept. 6-10. Gen. Mgr. Bernard Taymans, 5728 Connecticut Ave. N. W., Washington 15, D. C.

Research and Engineering Council—1959 Conf., Sheraton McAlpin Hotel, New York, N. Y., May 18-20. Managing Dir. Robert E. Rossell, 5728 Connecticut Ave. N.W., Washington 15, D.C.

Screen Process Printing Assoc., Intl.—1959 Conv., Hotel Statler, New York, N. Y., Oct. 31-Nov. 2. Exec. Secy. Robert H. Blundred, 549 W. Randolph St., Chicago 6, Ill.

SNPA (Eastern Div.) Mechanical Conf.—1959 Conf., Hotel Dinkler-Plaza, Atlanta, Tex., Mar. 8-10. Secy. Claude V. Capers, P.O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conf.—1959 Conf. Hotel Texas, Fort Worth, Ga., Aug. 9-11. Secy. John E. Johnson, Southern Newspaper Publishers Assoc., P.O. Box 1569, Chattanooga 1, Tenn.

Southern Graphic Arts Assoc. — 1959 Conv., Hotel Robert Meyer, Jacksonville, Fla., Apr. 27-29. Secy. Charles E. Kennedy, 1514 South St., Nashville 2, Tenn.

Technical Assoc. of the Graphic Arts—1959 Conv., Hotel Manger, Rochester, N. Y., June 15-17. Secy.-Treas. B. L. Sites, 421 Sunnyside Ave., Elmhurst, Ill.

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SLASH YOUR PRINTING COSTS WITH THE

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POWER MITERER

If you need miters in either small or large quantities, no other machine nor method can turn out anywhere near as many perfect joining miters so quickly from strip material. That's how the Rouse Power Miterer can slash your printing costs by doing work in minutes that now takes you hours.

A Rouse Power Miterer won't cost you one cent! Printers the world over say that money paid for a Rouse Power Miterer quickly comes back through tremendous savings in expensive time. After getting your money back, you'll start collecting daily dividends from permanently lower operating costs.

FROM THE SMALLEST JOB SHOP UP TO THE LARGEST PLANT, ONLY ROUSE MAKES A POWER MITERER FOR EVERY TYPE OF USE.

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Virtually every printing plant in the world uses one or more Rouse products.

NEW ROUSE CATALOG

Write for your copy TODAY!

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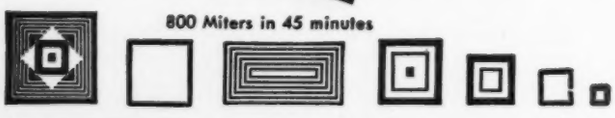

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MITERING MACHINES
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HI-GLOSS* OVERPRINT VARNISH

The varnish was run on a 42 x 58 press with a wet plate to lithograph this outstanding box wrap. The job was run for Eastman Kodak by the Hammer Lithograph Corporation, of Rochester, N. Y.

This job required an unusually scuff-resistant press varnish, with exceptionally good gloss and pale color. The pressroom wanted a varnish with good press stability and rapid drying in the pile. Pope & Gray's **HI-GLOSS* SLIP-TYPE OVERPRINT VARNISH** was the answer.

We would welcome your inquiries about our many **HI-GLOSS* OVERPRINT VARNISHES.** Pope & Gray, Inc. makes the following types:

NON-YELLOWING for large areas of plain stock.

WET-TRAP for running last down on a multicolor press over wet ink.

SLIP-TYPE for maximum rub resistance on labels, wraps and folding cartons.

NON-WAX TYPE for work which must be imprinted or overprinted when dry.

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HI-GLOSS* OFFSET & LETTERPRESS INKS

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METLAK* SILVER & GOLD INKS for letterpress and offset

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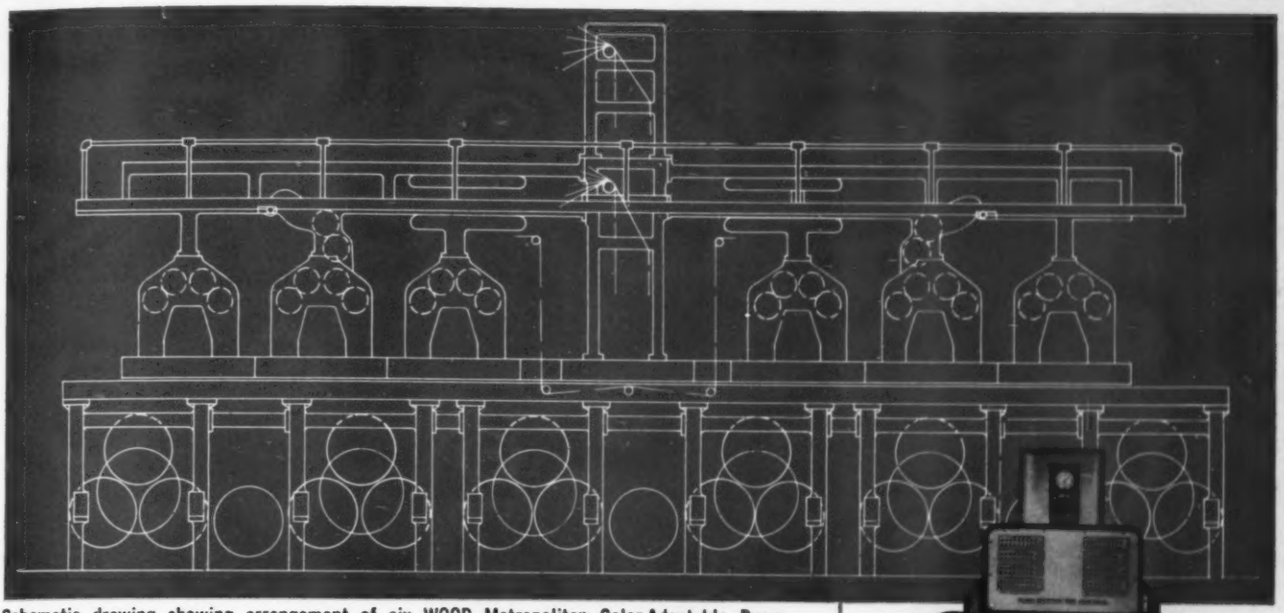
Litho in U.S.A.

press arrangement by WOOD

FOR GREENVILLE, S. C., NEWS–PIEDMONT



Schematic drawing showing arrangement of six WOOD Metropolitan Color-Adaptable Press Units equipped with Eye Level Push-Button Ink Controls. A complete Reelroom includes six Three-Arm Reels, Pneumatically-controlled Stationary Strap Tensions, and Electrotab Autopasters with Devices for making splices automatically.

WOOD engineered Pressroom and Reelroom installations, such as the one recently designed for the Greenville, S. C. News-Piedmont, to print up to 60,000 48-page papers or 30,000 96-page papers "collect" run, are proving to practical minded newspaper publishers in ever increasing numbers that the advantages of WOOD machinery and equipment can be measured in terms of increased profits.

Not only do WOOD Pressroom and Reelroom installations make it possible to print more and "better-looking" newspapers per hour in black and in color, they do it economically through smooth operation, with less down-time for maintenance and at higher production speeds. Faster, continuous paper feeding is made possible with WOOD Reels, Pneumatically-controlled Tensions and fully automatic Autopasters . . . coordinated equipment that is world-renowned for trouble-free service.

If your plant needs modernizing to meet growing demands for color or to keep pace with an increasing circulation, let WOOD engineers show you a Pressroom-Reelroom arrangement which will solve your problem.

Wood Eye Level Push-Button Ink Control panel mounted on each Press Unit. Red and Green (+) plus and minus (—) push-buttons automatically control ink flow to exact amount required.

WOOD NEWSPAPER MACHINERY CORPORATION

PLAINFIELD, NEW JERSEY • Executive & Sales Office: 501 Fifth Avenue, New York 17, N.Y.

The Greenville News — **GREENVILLE PIEDMONT**

Over the span of only three decades, these fast-growing morning-evening newspapers have expanded from local dailies with a circulation in 1927 of 39,000 to section-wide papers reaching over 104,000 readers today.

They serve nine South Carolina counties representing 60% of the population in one of the South's most prosperous market areas.

Installation of the new WOOD Pressroom-Reelroom equipment . . . which includes provision for future expansion . . . will provide the NEWS-PIEDMONT with completely modern facilities for high speed newspaper production with flexible use of spot and ROP color.

For More Information Circle 190 on Reader Service Card

NEWS ITEMS

Didde-Glaser Appoints—Steve Joseph has been appointed Eastern sales representative for Didde-Glaser Inc. His territory will include all of New England and Upper New York State, with headquarters at the firm's New York office, 345 Hudson St.

JOSEPH

McLAUGHLIN

Buys Brintnall, Forms New Company—William E. McLaughlin has announced the formation of the Graphic Arts Equipment & Supply Co., of which he is president. The company has assumed ownership of the Harry W. Brintnall Co. outlets in San Francisco and Seattle. Purchase of these properties was from Western Newspaper Union which bought the Harry W. Brintnall Co. in 1944 from its founder, Harry Brintnall. McLaughlin, who has been San Francisco manager of the Brintnall company for the past five years, announces that selling activities will continue until further notice as "formerly The Harry W. Brintnall Co."

Vulcan Names Distributor—Niles and Nelson, Inc. has been appointed exclusive distributor of Vulcan newspaper blankets in the New England states, it was announced by J. H. Wyatt, vice president, Vulcan Rubber Products Div., Reeves Brothers, Inc. Walter J. Woods has been assigned to cover the territory, reports J. H. Clancy, vice president and general manager, Niles & Nelson.

Vanguard Opens Dallas Office—Vanguard Sales & Service, an associate of Orville Dutro & Son, has announced the opening of its new main office in Dallas, Tex. Vanguard recently was granted the exclusive sales and service rights for the Vanguard newspaper press, manufactured by the Ghormley Engineering & Manufacturing Corp. and licensed by Offset Process Co.

Cleveland Appointment—West Virginia Pulp and Paper Co. has appointed Edward Noyes as its Cleveland area sales representative. Noyes will cover the Cleveland area out of the Pittsburgh office initially, but he will eventually establish residence in Cleveland.

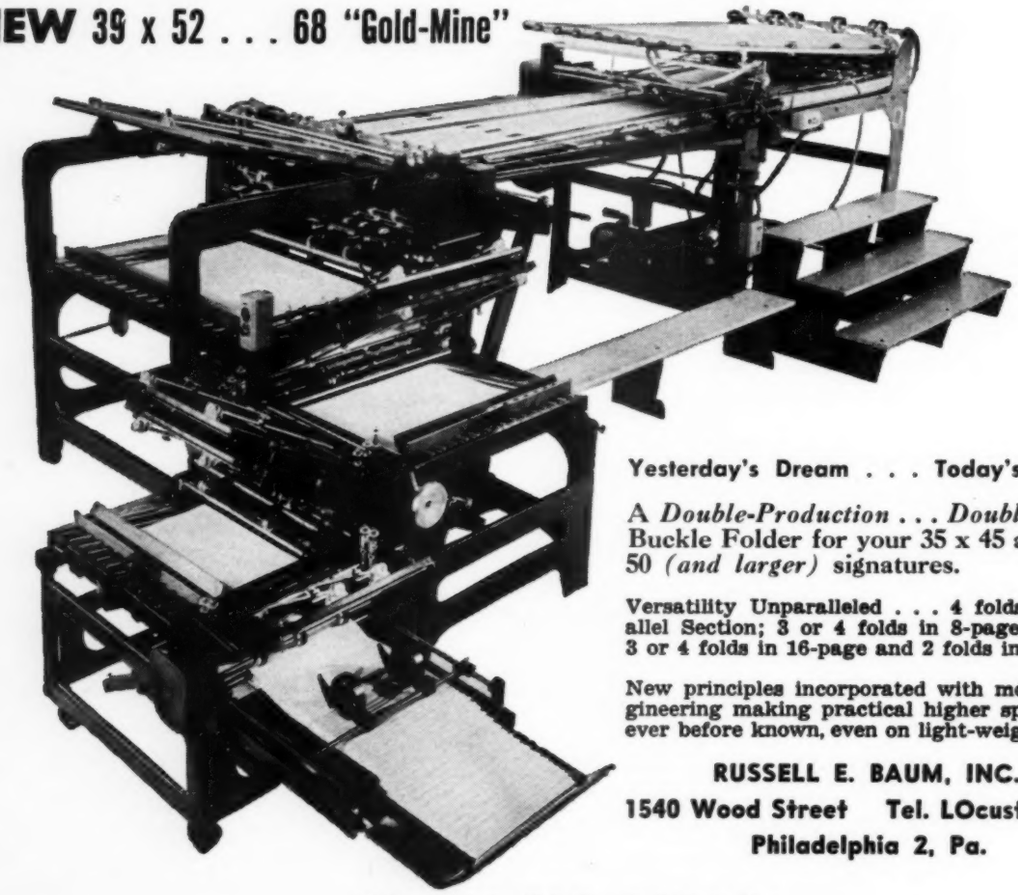
HERMAN

Plant Executive Changes at Kable—Grant Herman, Kable Printing Co., Mount Morris, Ill., has been promoted to plant manager with the Traffic Dept. and all area and night superintendents reporting to him. Announcement was made by Robert R. Kable, president of the company. Area superintendents, Harvey Wright and Gerald Powers have been given additional responsibilities. The purchasing and waste control departments and the new plant manager will report to Charles Edson, vice president in charge of manufacturing. Don Mills will continue as assistant to Edson with special assignments in research and development. Mills retains his responsibilities as area superintendent of the composing, engraving and job departments, being responsible to the plant manager in these areas.

Electrographic Elects—The Electrographic Corp. has announced election of Albert W. Dungan as chairman of the board of directors, and Frank E. Reilly as president and chief executive officer. At the same time, the firm announced the election of Edward H. Reilly as executive vice president.

(*Continued on Page* 20)

NEW 39 x 52 . . . 68 "Gold-Mine"



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A *Double-Production . . . Double Profit* Buckle Folder for your 35 x 45 and 38 x 50 *(and larger)* signatures.

Versatility Unparalleled . . . 4 folds in Parallel Section; 3 or 4 folds in 8-page Section; 3 or 4 folds in 16-page and 2 folds in 32-page.

New principles incorporated with modern engineering making practical higher speed than ever before known, even on light-weight stock.

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Philadelphia 2, Pa.

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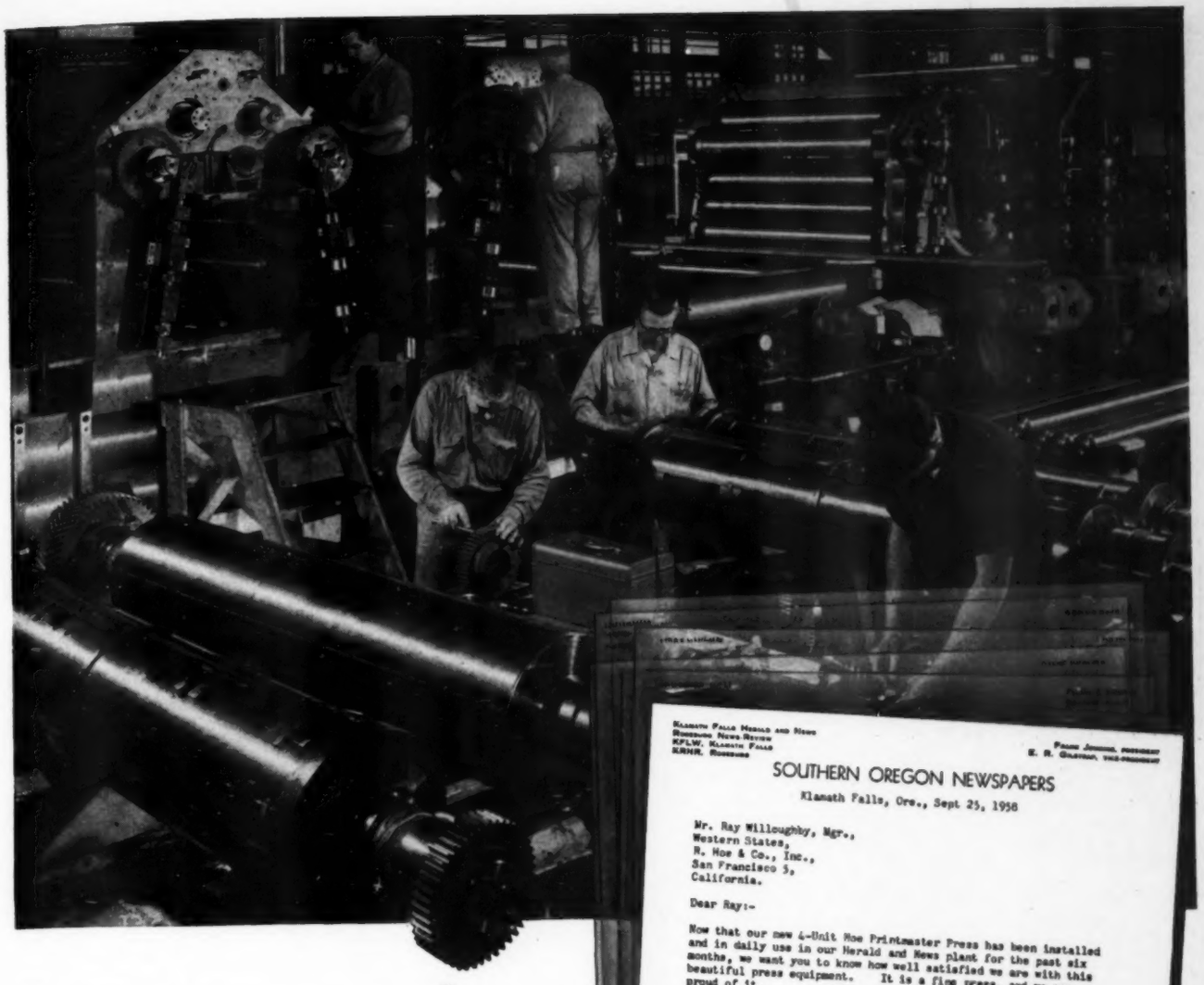
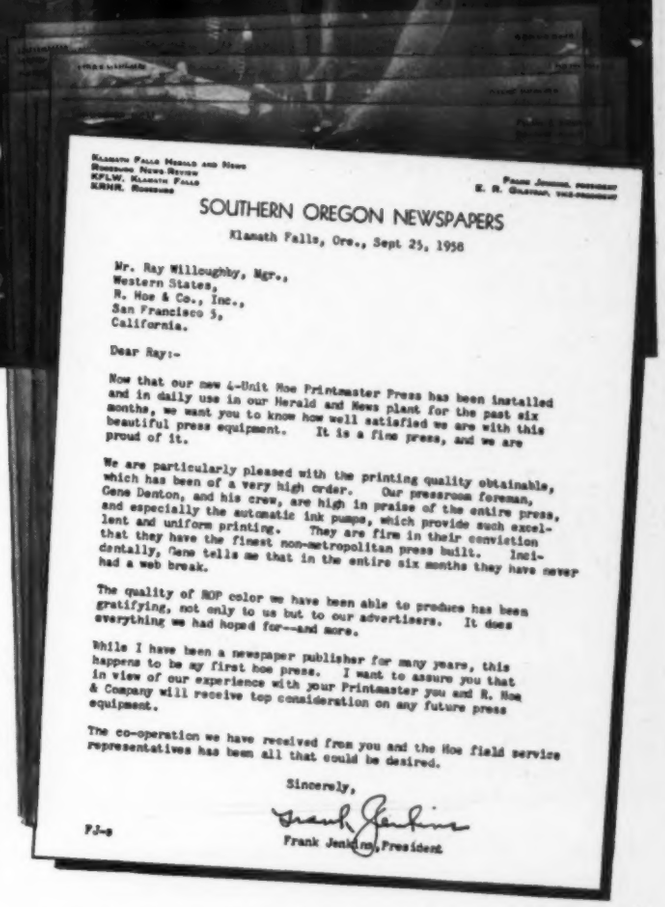




SOUTHERN OREGON NEWSPAPERS

Klamath Falls, Ore., Sept 25, 1958

Mr. Ray Willoughby, Mgr.,
Western States,
R. Hoe & Co., Inc.,
San Francisco 5,
California.

Dear Ray:-

Now that our new 4-Unit Hoe Printmaster Press has been installed and in daily use in our Herald and News plant for the past six months, we want you to know how well satisfied we are with this beautiful press equipment. It is a fine press, and we are proud of it.

We are particularly pleased with the printing quality obtainable, which has been of a very high order. Our pressroom foreman, Gene Denton, and his crew, are high in praise of the entire press, and especially the automatic ink pumps, which provide such excellent and uniform printing. They are firm in their conviction that they have the finest non-metropolitan press built. Incidentally, Gene tells me that in the entire six months they have never had a web break.

The quality of ROP color we have been able to produce has been gratifying, not only to us but to our advertisers. It does everything we had hoped for--and more.

While I have been a newspaper publisher for many years, this happens to be my first hoe press. I want to assure you that in view of our experience with your Printmaster you and R. Hoe & Company will receive top consideration on any future press equipment.

The co-operation we have received from you and the Hoe field service representatives has been all that could be desired.

Sincerely,

Frank Jenkins

Frank Jenkins, President

FJ-s

Our Correspondence Begins Here . . .

Satisfied PRINTMASTER customers write, "better HOE construction increases press life by 30%." Letters such as these begin in our factory where fine workmanship and skilled hands amplify HOE's superior design and rugged construction. Many firms tell us that traditional HOE quality gives the PRINTMASTER 30% more operational life. They're able to amortize the unit over a longer period, making their actual cost only a few dollars per week.

Publishers are highly enthusiastic about the PRINTMASTER's lubricating system. One newspaper discovered that the PRINTMASTER's automatic lubrication system saved them many dollars each week, as it eliminated the high cost of manually lubricating competitive equipment.

Another publisher praised the PRINTMASTER's automatic web tension arrangement. His pressroom foreman said that he couldn't remember when they had their last web break. He commented on our ink rail and the ease of color washups, the unit reversing and the accuracy of color register plus our careful attention to each and every operational detail. We receive many such letters. Why don't *YOU* write to us—learn how the PRINTMASTER can build black and white as well as R.O.P. color profits for *YOUR* paper. *It will pay you to get in touch with Hoe.*

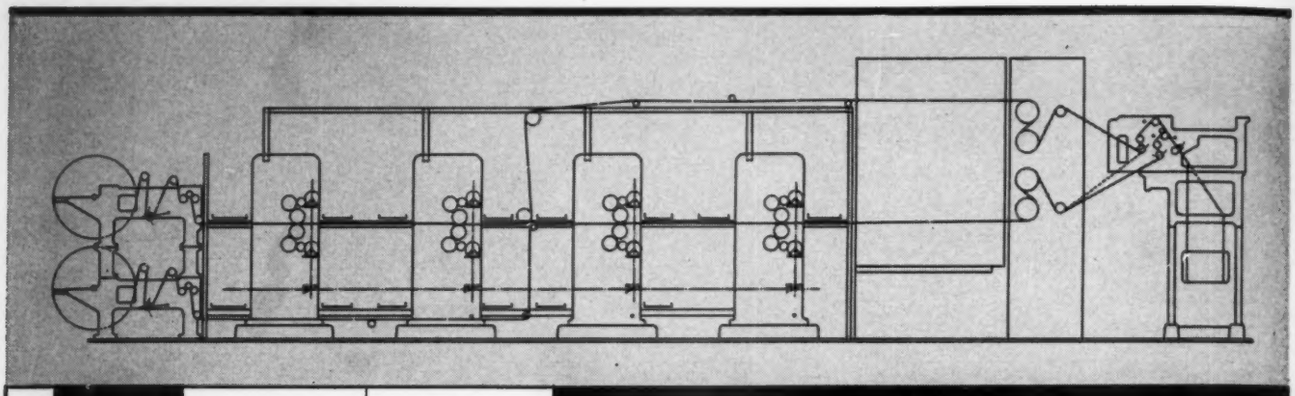
R. HOE & CO., INC.

910 East 138th Street, New York 54, N. Y.

Sales Offices: New York • Boston • Chicago • Dallas • Miami • San Francisco

For More Information Circle 87 on Reader Service Card

With the ATF 22¾ x 35 Publication Press you can handle all these color combinations and signature sizes



		number of webs	colors on each side of web	Number of folded pages			
				Newspaper, maximum page size 17½ x 22¾	Tabloid, 11⅜ x 13 to 17½	Magazine Signature, 6½ to 8¾ x 11⅜ untrimmed	Magazine Signature, 5-11/16 x 17½ untrimmed
ONE UNIT		1	1	4	8	16	16
TWO UNITS		1	2	4	8	16	16
		2	1	8	16	32	32
THREE UNITS		1	3	4	8	16	16
		1	1	8	16	32	32
		1	2				
		3	1	12	24	48*	48
FOUR UNITS		1	4	4	8	16	16
		2	2	8	16	32	32
		2	1	12	24	48*	48
		1	2				
		4	1	16	32	–	–

*Signatures of over 32 pages are possible but weight of stock would be the determining factor.

Along with extreme flexibility, this ATF Publication Press gives you special features that spell out high production on a variety of jobs: newspapers, magazines, catalogs, books.

- Grouped controls for ink form rollers, ink ductors, and water dampeners.
- Independent upper and lower unit register controls for side and running way adjustments.
- Printing units and roll stands are gear driven, eliminating old-style chains.
- Upper and lower plates can be changed simultaneously in less than five minutes without breaking web.
- Both full width cross perforation and slot vertical perforation to eliminate corner wrinkling in folding operation.
- Speed up to 20,000 cylinder revolutions per hour for both press and folder. (Reduced speed required for delivering right angle and chopper folded signatures.)

Get the facts on the economics of web printing. Write for ATF's Web-Fed vs. Sheet-Fed Booklet—a comparison of web offset printing costs with sheet-fed costs (letterpress and offset).

ATF

American Type Founders

Web Division, 200 Elmora Avenue, Elizabeth, N. J.

Better, more profitable printing . . .
from the most complete line of equipment

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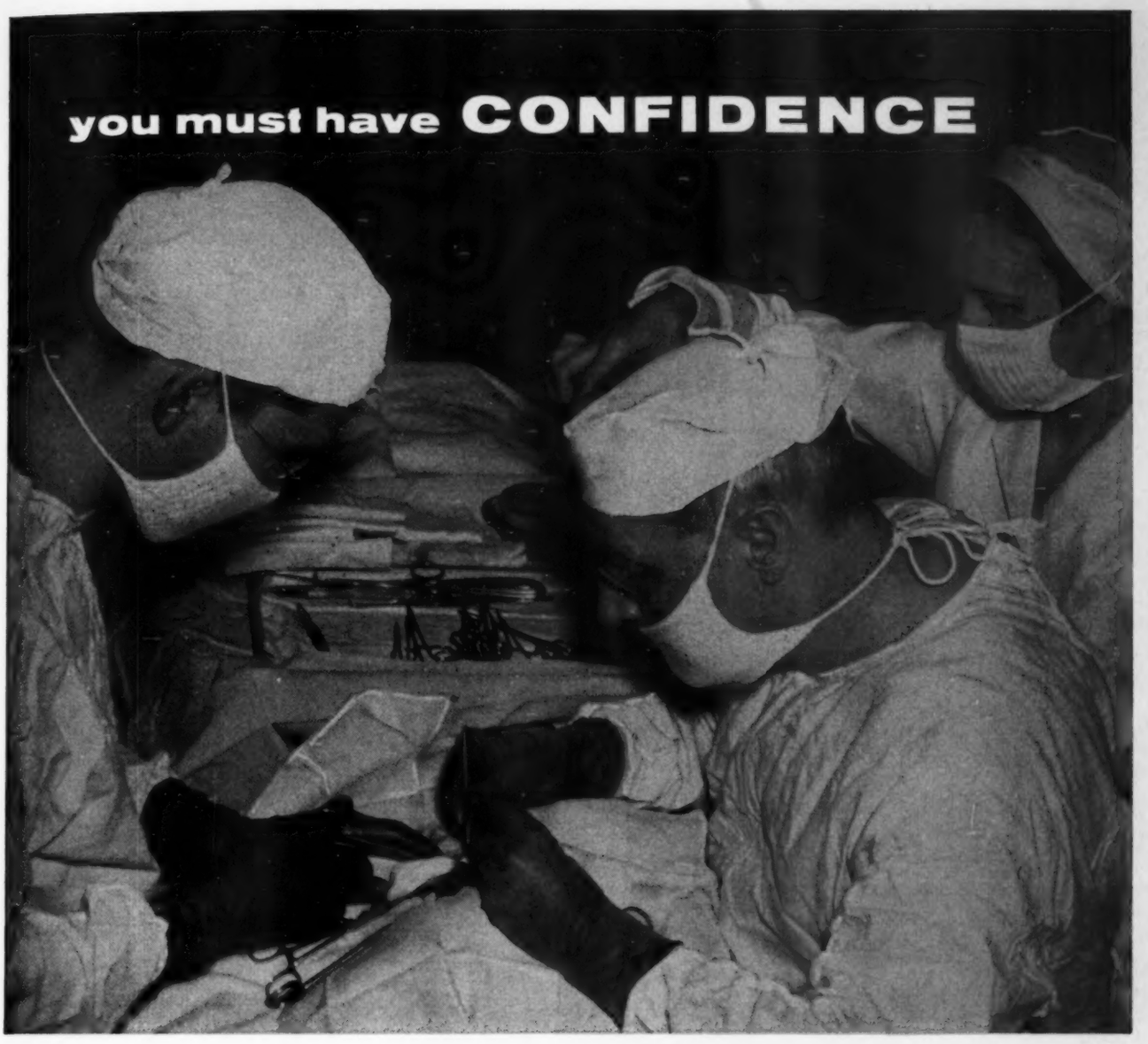

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PERFECTION®

Small Rolls and Folded Paper Products

FLAT THE YEAR ROUND

PERFECTION® Flat Gummed Paper

1. Experienced SELECTION of paper stocks and all other raw materials.
2. Scientific Laboratory Control and Supervision of QUALITY in all products.
3. Technical accuracy in all converting procedures to assure UNIFORMITY.
4. Faithful FOLLOW-UP of all promised schedules.

PAPER MANUFACTURERS CO.
PHILADELPHIA 15, PENNSYLVANIA

For More Information Circle 143 on Reader Service Card

News Items

(Continued from Page 16)

Vogel Joins Oxford Paper—John H. Vogel has joined Oxford Paper Co. as marketing research manager, it was announced by Andrew M. McBurney, vice president, sales.

ATF to Distribute 3M Dampening System—American Type Founders Co. has been appointed dealer for Minnesota Mining & Mfg. Co.'s 3M brand dampening rollers and sleeves. ATF's sales manager, John T. Porter, said the 3M dampening system will be available as an optional item on new Chief 15, 20, 22, 24 and 29 presses, as well as Super Chief presses. The system will also be available for installation on ATF and other makes of offset presses now operating in the field, Porter said.

M-G-D Market Research Director—John W. Hill has been appointed director of market research for Miehle-Goss-Dexter, Inc., according to Paul A. Florian, product planning director for M-G-D. Hill will assist both corporate management and the division market research groups by evaluating the needs of various M-G-D customers.

HILL

EVANS

Miller's New Ad Manager—Ned Evans, who served as marketing assistant with Miller Printing Machinery Co., has been appointed advertising manager. Announcement was made recently by Frank Betlock, Miller sales manager. Evans succeeds W. J. Sedlak who is now advertising and sales promotion manager for Jones & Brown, a national sales agency for home improvement products in Pittsburgh, Pa.

Wood Names Replacement — Walter E. Tolk has been appointed sales representative for the western territory of Wood Newspaper Machinery Corp., announces John J. Shea, president. He replaces George R. Steele who is retiring. Steele had been employed by Wood for approx. 10 years.

TOLK

HAGEDON

H-S Merchandising Manager—James M. Hagedon has been promoted to the newly-created position of merchandising manager for Harris-Seybold Co.'s Dayton division. He will have responsibility for coordinating product sales with engineering and manufacturing of offset presses and cutters built at the company's Dayton plant.

Champion Paper Appoints—The Champion Paper and Fibre Co. has announced appointment of Maj. Gen. Alfred H. Johnson, USAF, Ret., as special assistant to Henry W. Rigby, executive vice president, corporate development.

Grandbois Dies—Leo E. Grandbois died on Nov. 6 in New York City. He joined the sales staff of Pope & Gray Inc., ink manufacturers, in 1936, and had been active since that time in ink manufacturing and sales.

Litho Firm President—Robert M. Schmid, former vice president and secretary, has been elected president and treasurer of Trautmann, Bailey & Blampey, New York lithographic firm.

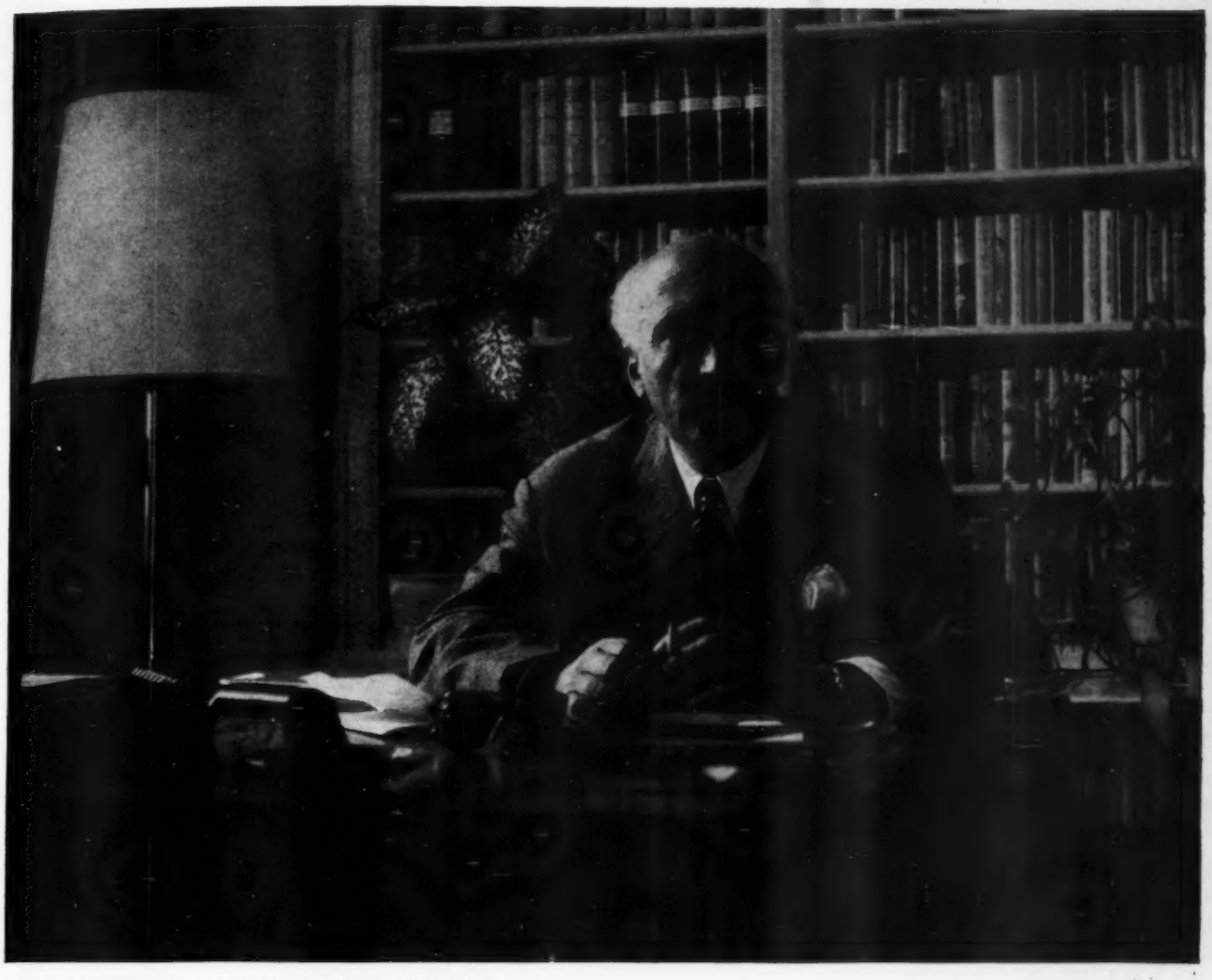
Without the least conceit, we think that Bill, the etcher, does have an important visitor when he talks to an informed Imperial representative. It's important for him to find out which of the three Imperial Zincs—Vitaplate, Duraplate or Regular are best suited to his operations. When an Imperial representative calls, ask him about one-bite, one-bath, one-machine etching with Vitaplate and VitasolV . . . his visit should be worthwhile to you.

3 quality zincs
VITAPLATE • DURAPLATE • REGULAR AND VITASOLV

IMPERIAL TYPE METAL COMPANY
Chicago 50 • New York 7 • Philadelphia 34

*The use of VitasolV comes within the limits of the Dow Patents.

For More Information Circle 93 on Reader Service Card



ULLSTEIN CHOOSES GOSS

"Despite the ravages of the Nazi revolution and the war, the Ullstein printing house in West Berlin gradually becomes again an attraction for visitors. The management tries step by step to re-equip the printing house with first class machinery, hence the choice of GOSS Headliners."

KARL ULLSTEIN
ULLSTEIN PUBLISHING CORP.
WEST BERLIN, GERMANY

The House of Ullstein ranks among the leading publishing firms in Europe. Besides producing millions of periodicals, books, pocket books, and 60% of West Germany's dress pattern consumption, it publishes two of Berlin's main newspapers—combined circulation over half a million.

Traditionally, even long before Hitler forced their downfall as Germany's top publisher, Ullstein based their continued growth on having the most modern methods and equipment. This policy continues under the current leadership of Karl Ullstein. His tour of the U. S. recently to study operations and machines, *and his subsequent choice of Goss Headliners* was in keeping with this policy.

The Goss installation at Ullstein will include eight Headliner units with multicolor arrangements, all equipped with Tension Plate Lock-up, and two folders. Goss Limited of Preston, England will build the equipment for delivery in early 1960 to be housed in a new wing to the Ullstein plant.

THE GOSS COMPANY
DIVISION OF MIEHLE-GOSS-DEXTER, INC.
5601 WEST 31ST STREET, CHICAGO 50, ILLINOIS

For More Information Circle 72 on Reader Service Card

HELPFUL LITERATURE

FOLDERS · Sales Aids · Instruction Sheets · BULLETINS · Catalogs · BOOKLETS · Brochures

Circle Numbers on Reader Service Card in This Issue

Keep Yourself Informed. The folders and bulletins listed below all pertain to modern equipment, supplies, processes and/or methods. These have been prepared especially for plant managers, superintendents and foremen. Please circle the numbers on the Reader Service Card in this issue for the bulletins you wish to receive. Drop the self-addressed card in the mail. PRINTING PRODUCTION will forward your request.

Composing Room

ELROD MATERIAL MAKER FOLDER

Ludlow Typograph Co. has published a four page folder on the Model K Elrod material making machine. The Model K produces strip material from 1 pt. to 18 pt. in thickness. Circle No. 340 on Reader Service Card.

FLUORESCENT COPY LAMP

A flyer on the fluorescent copy lamp, which can be applied to Monotype keyboards without alteration, is offered by Lanston Monotype Co. A ball joint connection permits easy adjustment. Circle No. 341 on Reader Service Card.

TELETYPESETTER LINECASTERS

Fairchild Graphic Equipment Inc. has a descriptive brochure on Teletypesetter linecasting equipment, including tape perforator and operating units. Circle No. 338 on Reader Service Card.

STAR SELECTRO-MATIC QUADDER

Star Parts Inc. is offering a brochure describing the Star Selectro-Matic quadder which is designed to prevent casting any line which is more than 0.006 in. short of full measure. Circle No. 336 on Reader Service Card.

MOHR LINO-SAW BOOKLET

Mohr Lino-Saw Co. offers a booklet on use of Mohr slug cutting saws on linecasting machines in composing rooms. Circle No. 325 on Reader Service Card.

WESEL PROOFING PRESS

The Wesel EPP-4 proofing press is described in literature available from Wesel Manufacturing Co. Heavier construction, quieter operation and an improved inking system are claimed by sponsor. Circle No. 314 on Reader Service Card.

AMSCO STEEL AND ALUMINUM CHASES

American Steel Chase Co. has prepared a catalog on its line of steel and aluminum chases for newspapers, commercial printers, stereotypers, and electrotypers. Circle No. 322 on Reader Service Card.

FISK ALIGN-A-MAT

Descriptive literature is available on the Fisk Align-A-Mat for re-aligning Linotype and Intertype matrices. Circle No. 316 on Reader Service Card.

Platemaking

TWO ULANO MASKING PRODUCTS

Ulano Products Co. offers descriptive literature on a ball-bearing Swivel cutting instrument for making photomasks and Mylar plastic lacquer-proof No. 33 masking film. Circle No. 348 on Reader Service Card.

ALUMINUM AS A LITHO METAL

A folder offered by Aluminum Co. of America, Better Lithography with Alcoa Aluminum, cites advantages of aluminum litho plates. Circle No. 345 on Reader Service Card.

TWO KODAK FILM PUBLICATIONS

Eastman Kodak Co. is offering two pamphlets describing general physical characteristics and dimensional stability of two films for the Graphic Arts industry, Kodak polystyrene base film and Kodak acetate films. Write Sales Service Div., Eastman Kodak Co., Rochester 4, N. Y.

ORANGE 500 SYNDICATE MAT

Samples of the Orange 500 Syndicate Mat for stereotype molding are available from New Products Div. of The Beveridge Paper Co. This mat is designed for stereotype flat casting work only. Mats are properly seasoned before shipment from the mill and may be used immediately. Circle No. 313 on Reader Service Card.

LAKE ERIE MOLDING EQUIPMENT

Lake Erie Machinery Corp. offers a bulletin on its Directomat mat molding machines and a bulletin on its Acraplate rubber and plastic plate molding machines. Circle No. 328 on Reader Service Card.

KEMP STEREO AND REMELT POTS

Details on the gas or electric heated Kemp stereo and remelt pots are contained in a bulletin offered by The C. M. Kemp Mfg. Co. Circle No. 324 on Reader Service Card.

MONOMELT AIR-GRIP VACUUM CHUCK

The Air-Grip vacuum chuck for use by engravers, electrotypers and stereotypers is described in a folder prepared by The Monomelt Co. Circle No. 326 on Reader Service Card.

POWDERLESS ETCHING MACHINE

The Dow-Chemco Model 510 Powderless Etching Machine is the subject of a four page brochure offered by Chemco Photoproducts Co. Inc. Features are liberally illustrated, including the six paddle drive. Circle No. 342 on Reader Service Card.

Pressroom

DAVIDSON DUAL-LITH PRESS

Questions and answers on the Davidson Dual-Lith press is the subject of a booklet prepared by the Davidson Corporation. The Dual-Lith is designed to handle color proofs, imprints, form letters, circulars, catalog inserts, labels and regular press work. Circle No. 333 on Reader Service Card.

GE ELECTRONIC PRESS DRIVES

Separate bulletins are available from General Electric Co. on the GE electronic unit drives for metropolitan newspaper presses and the GE Inductrol DC group drive for smaller presses. Circle No. 327 on Reader Service Card.

ATF GREEN HORNET PRESS BULLETIN

American Type Founders Inc. offers a bulletin descriptive of the Green Hornet web offset press, designed to handle a web from 8 in. up to 17½ in. wide and to deliver cut sheets up to 11¾ in. long. Circle No. 331 on Reader Service Card.

ELLESS AUTOMATIC STREAM FEEDER

Turner Printing Machinery, Inc. has prepared a cost analysis chart said to demonstrate the advantage of using Elless automatic stream feeders. Circle No. 329 on Reader Service Card.

DUPLEX PRESS LUBRICATION

The Goss Company has issued Goss-Duplex Service Guide No. 12 which contains an article on *Lubricating the Duplex Press.* Several line drawings indicate common and some easily missed lubricating points. Satisfactory oils and greases are listed. Circle No. 347 on Reader Service Card.

NEW ERA PRESS BULLETIN

New Era presses for producing tags, labels, and forms are described in a bulletin offered by New Era Mfg. Co. New Era presses also are designed to handle bag headers, tickets, and specialties. Circle No. 335 on Reader Service Card.

TINGUE SPOTLITE DRAWSHEET

Tingue Spotlite Drawsheet is described as a strong second impression drawsheet in a new catalog being offered by Tingue, Brown & Co. Circle No. 317 on Reader Service Card.

FLINT INK COLOR SELECTOR

Flint Ink Corp. is offering a new color selector for its Arrowhead newspaper black and color inks formulated to ANPA standards. Circle No. 318 on Reader Service Card.

FORCE ROTARY NUMBERING HEADS

Wm. A. Force & Co. offers a descriptive operating and maintenance manual on Force rotary numbering heads, designed for form numbering on many types of rotary presses. Circle No. 323 on Reader Service Card.

GPI PRESSROOM CHART

A wall chart describing 25 difficulties commonly found in lithographic pressrooms, their causes and suggested remedies is offered by General Printing Ink Co. Circle No. 308 on Reader Service Card.

Bindery

SHERIDAN GATHERING MACHINE

The new Accu-Speed gathering machine is described in a six page brochure offered by T. W. & C. B. Sheridan Co. Designed for side gathering of sheets or signatures, machine is said to gather sets up to 4 in. in bulk, at speeds up to 9000 sets per hour. Circle No. 307 on Reader Service Card.

SHARPENING PAPER KNIVES

Issue No. 2 of the quarterly publication, *Cutting Trends,* features an article on the correct grinding and honing procedures for sharpening paper cutting knives. It is offered by Simonds Worden White Co. Circle No. 344 on Reader Service Card.

ROYAL McBEE BINDERS

Royal McBee Corp. has issued a six page brochure on its Margin Master Binders, designed to house active marginally punched forms. Models for both burst and unburst forms are available. Circle No. 311 on Reader Service Card.

DIDDE-GLASER COLLATORS

Didde-Glaser, Inc. has prepared a brochure on its Speed Klect collator and Dual Stream collator which is available in three to eight station standard models. Circle No. 334 on Reader Service Card.

(*Continued on Page* 84)

Whether it's bucks for yourself or perfect printed impressions for your customers, you'll make them faster when you replace old-style rollers with new

IDEAL ACE GRAYTONE

PRECISION-INKING ROLLERS FOR JOB AND SMALL HIGH-SPEED PRESSES

Replace old-style rollers with ACE GRAYTONES on your small high speed presses. Run at full capacity . . . hour after hour. These amazing GRAYTONE rollers **won't melt** . . . EVER! Made, inside and out, from non-meltable soft synthetic rubber, cured at 307°F., they end trouble stops for cooling, and that super headeache, MELTING . . . forever!

You'll turn out 5 to 6 thousand MORE perfect impressions every day, save the cost of your ACE Graytone Rollers the first week. THEN get three to four more seasons of the same fine performance . . . all on the profit side.

Make that Mythical Million Real...
Order ACE GRAYTONE Rollers NOW...

And that's not all! Remember . . . no cooling time in summer. No warm-up time in winter. You can start your presses when you unlock in the morning! Save on clean-up, too! That smooth gray surface is fast to wash . . . shows when it is CLEAN . . . AND shows when ink is properly distributed for perfect printing impressions!

	EACH		EACH
☐ 8x12 C & P (Gordon) Ace Graytone Rollers	$4.25	☐ 12x18 Kluge Ace Graytone Rollers . . .	$5.90
☐ 10x15 C&P (Gordon) Ace Graytone Rollers	4.90	☐ Miehle Vertical* (plain core) Forms & Distributors 2" dia. .	7.25
☐ 12x18 C&P (Gordon) Ace Graytone Rollers	5.50	☐ Small Forms (on late models) 1¾" dia. . .	7.25
☐ 10x15 Craftsman Ace Graytone Rollers . . .	5.50	☐ Heidelberg 10x15 Forms	
☐ 12x18 Craftsman Ace Graytone Rollers . . .	5.90	☐ S Cores	7.75
☐ 10x15 Kluge Ace Graytone Rollers . . .	5.50	☐ K Cores	7.75

*Reserved for Offset Runs

IDEAL ROLLER & MANUFACTURING CO.

2512 W. 24th St. Chicago 8, Ill. | 21-24 Thirty-ninth Avenue Long Island City 1, N. Y. | 6069-6073 Maywood Ave. Huntington Park, Cal. | 5238 Peachtree Road, NE Chamblee, Ga.

For More Information Circle 92 on Reader Service Card

Plan Your 1959 Vacation for New York and plan to attend the

7th EDUCATIONAL Graphic Arts EXPOSITION

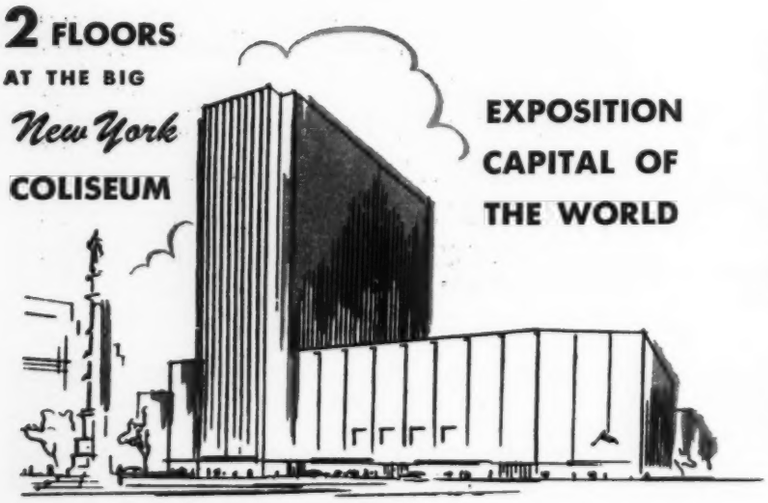
SEPTEMBER 6th to 12th, 1959

YOU WILL be joining thousands of graphic arts executives and craftsmen, from all over the world, congregated in the hub of the universe during that week. The International Association of Printing House Craftsmen will celebrate the Golden Anniversary of Craftsmanship. The Printing Industry of America and other national graphic arts groups meeting for their annual conventions will bring 12 organizations within minutes of the New York Coliseum, the world's largest exhibition building, at Columbus Circle.

Two full floors and the mezzanine floor of the Coliseum will contain the greatest display of graphic arts equipment ever assembled. The most modern devices, techniques and developments will be demonstrated for seven full days by the leading manufacturers, suppliers and technicians. The main purpose is to show the widest possible variety of equipment, with emphasis on the small or medium-size plant. The 160,000 square feet of exhibition space will display all of the latest technological advances now available and in process of development.

Plan *now* to be in New York to combine your vacation pleasure, in the world's finest convention city, with a profitable educational visit to the world's largest graphic arts exposition. Everybody who is anybody in the graphic arts will be in the big town from September 6 to 12, 1959.

2 FLOORS AT THE BIG *New York* COLISEUM



EXPOSITION CAPITAL OF THE WORLD

Exposition under Management of

NATIONAL *Graphic Arts* EXPOSITIONS INC.

PRINTING PRODUCTION

JANUARY 1959

Study of Walking Distances Can be Helpful in

COMPOSING ROOM

By COLLIER ELLIOTT*

PLANNING the production of a composing room is a complex and difficult job. Many of the production methods you use every day are time-tested and probably the best that can be worked out. On the other hand, I would be very surprised if each production executive does not have at least one part of his operation with which he is dissatisfied and believes can be improved.

In many cases, ideas of how to do things better are held up by present composing room layouts. If you are moving into a new building you'll be able to design your new layout to work into your new operation pattern. If it's a case of rearranging within your present space, it's not that easy.

The production executive should clear away conditions that make it necessary to spend time doing things.

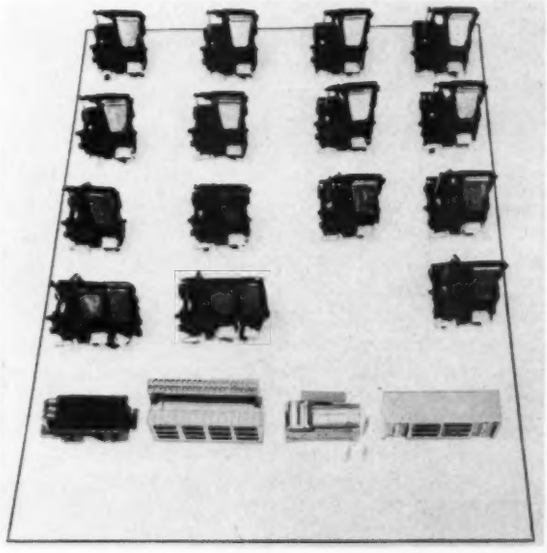
For instance, our men go to a number of places to assemble the materials they need to make up an ad; they walk to saws and miterers, and have to wait to use this equipment. I don't think increased production is a question of asking men to work harder. Instead it's a matter of cutting this unproductive activity to a dead minimum. This activity comes directly from the ways we do things, the ways we arrange equipment, and the patterns in which we move work through our composing room.

Most of our methods and room layouts have been inherited—handed down from the past when work loads were quite different from today's. How do we go about doing something about it? Each operating method and every detail of plant layout should be custom designed for your operation to fit what you have to do.

You can go about this job in two ways. One is to start with what you are doing now; you make an improvement here, set up a better layout there. This way is used quite often and results can be very good. One difficulty, however, is that it's very hard to be sure that you've gone as far as you can; that you've made all the improvement possible.

The other way is to start back at the beginning and work out the ideal way to do each job that must be done. Then you season this with a liberal amount of practicality to bring the ideal down to earth to make it workable. Then work out the transition from present to planned operation, including a way to try out each change before settling on it.

But how do we go about developing this ideal operation? We start with what has



What would be the ideal composing room arrangement for this straight matter battery of linecasting machines? Several are suggested by the author of this article and pictured in scale model form on the following pages.

* The author, until early last year, was manager of the Production Planning Dept., Mergenthaler Linotype Co. He now heads his own consulting firm located in Garden City, N. Y. The article is based upon a talk made by Elliott at the Northwest Newspaper Mechanical Conference held in Minneapolis, Feb. 1958.

to be done. This means that we should question the necessity of everything we do. It's surprising how often expensive jobs are still done long after the need for them has changed or disappeared. It doesn't pay to accept anything as necessary and unchangeable, no matter how long established.

Questions To Be Asked

There are other important questions that should be put against the work that survives your necessity test. They should start with the availability of copy and production time, and be followed by questions of methods, procedures, and schedules of shifts. Then come the questions on how to do the things you decide should be done. Finally, a study of shift schedules to bring needed journeymen to bear upon the work pattern—the right number of men at the right time.

When you have settled upon the way you intend to do each part of the job, you will find that you can help your operation very materially or hurt it severely by the plant layout in which you set it. Essentially the same kinds of questions must be asked to decide best placement of equipment and work stations.

Let's illustrate some of these points using a straight matter battery of linecasting machines. This would include: 12 straight news machines; one ring machine for corrections, cut lines, and leads; two head machines; one copy cutter's desk with tubes; one type dump; one proof press; one correction bank. These are pictured on the first page of this article.

Reduce Walking Distances

In many plants you'll find an orderly array of rows or some similar symmetrical grouping (Fig. 1) with the copy cutter out in front, head machines nearby and ring machine also in the front rank. One round trip to dump and hook for the 15 machine operators totals 752 ft. or 1/7 of a mile.

This is a fair distance for men to walk, especially when we call on them to make the trip more and more often—for short takes—when we need production most urgently. Obviously while they are walking they aren't producing; so we should try to cut down the journey to allow more time for production.

In theory, the best point for copy hook and dump would be one point: Directly in the center of the battery.

Total distance of 15 round trips in Fig. 2 grouping is 338 ft., a reduction of 364 ft., or nearly half. To put it another way, the first arrangement involves almost 100% more walking than the second. This would be ideal. But to be practical, a copy hook and dump can't be a single point. They have width and depth. One man works at the hook, but the dump must have room for several operators at a time and for the bank man to collate stories. So these points cannot be located at the theoretically perfect spot. But, we can bury them in the battery, as near the center as possible.

Substituting a copy hook and dump area with width and breadth for the point, we get an arrangement as shown in Fig. 3. Walking distances for operators are the shortest practically possible here, but the machines form a wall or barrier on all sides of the bank area which prevents the easy flow of type out of the battery to makeup.

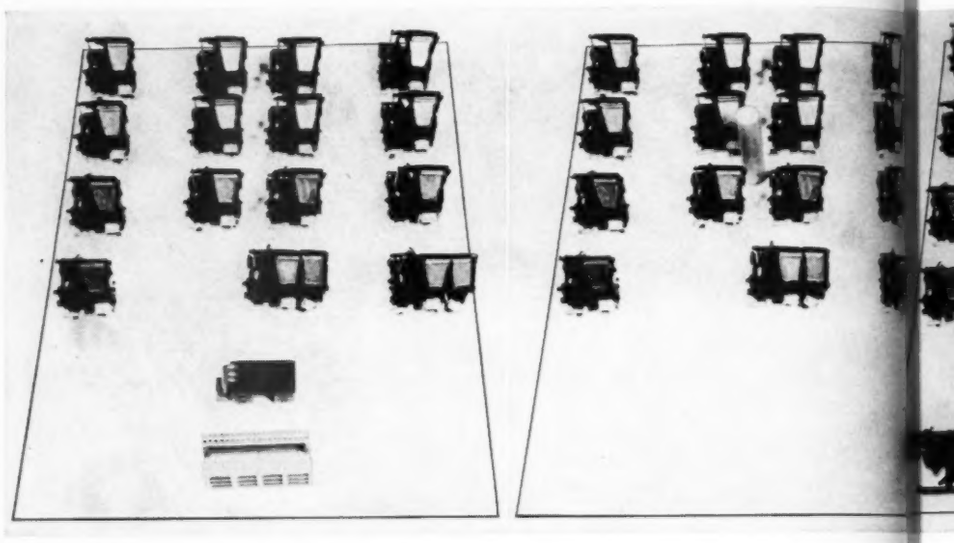
Total distance in Fig. 4 is 534 ft. Not ideal, but better than the first 752 ft. Our headletter machines are close to the copy cutter so that he can merely hand off the copy. The ring machine is at the proof press where it is most convenient, and we have a rather smooth setup.

How have we used our space in the arrangement shown in Fig. 5? We have two very nice aisles and our operators have space back of them to push back their chairs. Both of these areas get part time use. Can we combine them? After some headscratching, we find that turning the machines 90 deg. will accomplish this.

Aisles Can Be Dangerous

You can see by the way the battery takes up less room, that we have actually improved our over-all use of space. Should we stop now? No, because some of us have misgivings about men carrying galleys of type behind other men operating. A chair pushed back when a man is passing; a fall; perhaps an injury; almost certainly a pied galley. So, should we go back to the other? Not without a struggle. Our total distance has been reduced from 752 ft. in the previous to 534 ft. in this and we would like to keep this advantage.

Another session, and we find the answer in an angled machine arrangement (Fig. 6). This gives each operator the protection of the corner of his machine. When he slides back, he doesn't block the aisle. Incidentally, if you wonder why some machines face away and some toward the aisle, this is to form the rear of the operator's little triangular office with the assembling side of the next machine rather



Figs. 1 and 2—In arrangement at left (Fig. 1) one round trip to dump and copy hook for the 15 machine operators totals 752 ft. Total distance of 15 round trips in grouping at right (Fig. 2) is 338 ft., nearly half of the other arrangement.

than the machine's hot casting side.

This little exercise in imagination started with the ideal, brought this down to earth, and then refined the result. What basic principles can we work out? We can start with the obvious to keep the list complete:

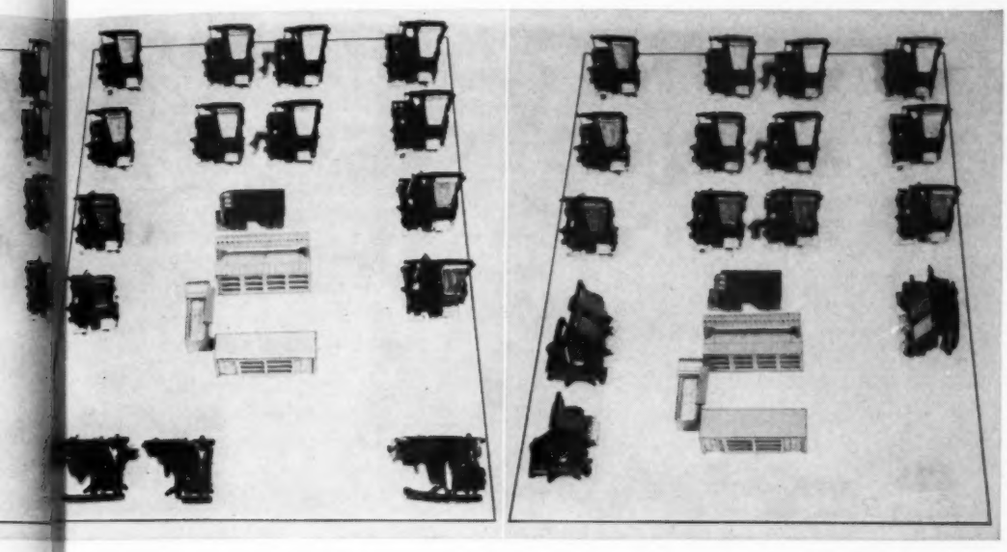
(1) In the work flow pattern, keep each successive step as near the preceding one as possible.

(2) Centralize facilities used by groups.

(3) Keep the production area compact. Leave expansion space on outer edges of batteries and units. Don't fill up space simply because you are fortunate enough to have it.

(4) Locate supervision according to need. Central for a general view over the room or closer to areas which need more attention.

(5) Locate service operations not involved in the flow of type outside the central production area. This includes machinists, proof readers, Teletypesetter perforators, remelt, material making, etc.



Figs. 3 and 4—Walking distances are shortest possible in left grouping (Fig. 3), but machines form a barrier on the bank area which prevents flow of type to makeup. Total walking distance in arrangement pictured at right (Fig. 4) is 534 ft.

Locating the Proofroom

There will be some who do not agree with this last principle; who feel the proofroom should be at the proof press or very near it. I have never been able in my own mind to justify using space as near the heart of production as this for work which can be done literally anywhere at all.

When we consider proofroom location, we must take into account the supervision needed. If, in your group of readers, there is no one able or willing to take incoming work and arrange it according to urgency, the proofroom must be located where one of your foremen can see to this. And, if you feel strongly that your people produce more when closely supervised, this has to be considered.

There is another consideration. This is the desirability of locating your ring or correction machine right at the correction bank. It may very well turn out that this and the proofroom will be competing for the available space.

When you consider the possibility of locating a proofroom at some point away from the proof press, we have to make provision for getting the proof from the press to the proofroom. The most obvious answer is, use a conveyor. The thought of a conveyor need not bring to mind a cumbersome or expensive installation. Some very constructive use has been made recently of the belt and rail kind which is inexpensive, accessible for maintenance, and flexible.

In a conveyorized operation it is very simple to drop the marked proofs at the ring machine on the return flight of the conveyor. There are no carriers to open and close, and the system operates very quietly. Correction lines set at this point travel the shortest possible distance and are available to the bank man with no time lag. Such systems should be investigated by plant executives.

You are dealing with a very complex mechanical process in a modern composing room. There are many criss-crossing relationships; many different but related things being done at any given moment. Under such circumstances it is not surprising to find need for compromise. When two operations conflict or compete for the same space, give the advantage to the one that occurs more often; the one that involves more people so that total travel distances are minimized.

When Operations Conflict

An example of what happens because of frequent repetition can be seen in our 15 machine straight matter battery. In all of the arrangements, the dump was kept as close to the copy cutter as practical so that operators would have an absolute minimum walk for a new take after dumping type. Everybody covers this distance every trip so our multiplier is large: The number of operators times the average number of trips to dump. A conservative estimate of trips for each operator would be:

During 2 hrs., every 30 min. = 4 trips
During 2 hrs., every 20 min. = 6 trips
During 2 hrs., every 15 min. = 8 trips
During 1 hr., every 10 min. = 6 trips
During ½ hr., every 5 min. = 6 trips
30 trips
15 men × 30 trips 450 trips
Dump to hook— 8 ft.—3600 ft. or two-thirds of a mile
Dump to hook—12 ft—5400 ft. or more than one mile

Each 14 in. of distance from dump to hook can mean 1/10 of a mile per shift for 15 men.

Walking is Costly

Walking is very costly at any time. If we take a walking pace less than half of the standard U. S. Army marching cadence, we find that cutting out one 10-step trip once every 10 min. will save $5000 per year in work time for every 50 men in your room. This is only the cost, at present average scales, of the walking time itself; it does not include anything done, or any delay, at the destination.

Now, 10 steps won't take a man very far and once in 10 min. isn't very often, but the total is cer-

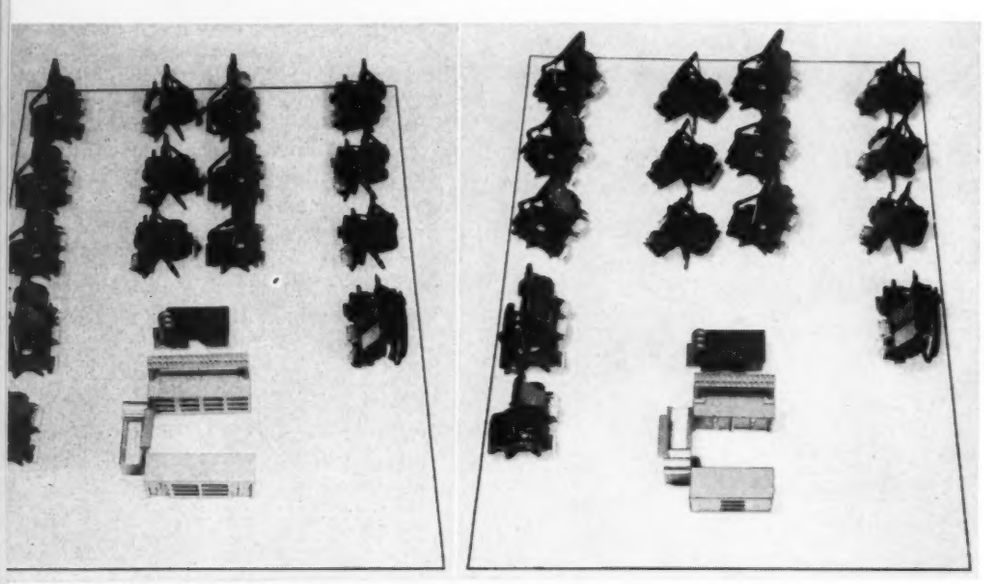
tainly worth considering by planners.

One of the two approaches to improving plant layout has been based on a careful study of best ways to do things. It should be unnecessary to say here that caution should be exercised about perpetuating past practices on the automatic assumption that anything old must be good.

Solution Can Handicap

The opposite extreme crops up very often, however. This is where some part of the operation, for instance, making late ad corrections, was severely handicapped in the old layout. The proposed new layout will often feature a brilliantly worked out correction area with every advantage in size and location. Sometimes this solution to a previous sore point handicaps other operations. In this particular example, corrections were tough enough to make so that page closings were late from time to time. But actually, the problem only existed for about an hour each day and involved only a few men. The solution was so advantageously located at the ad floor hook that the entire force of ad floormen would have had to walk 20 ft. further than necessary each trip to the hook all through three shifts. The multipliers had been overlooked and the solution to the original trouble was out of proportion to the total operation.

Don't hesitate to change methods when you change floor plan layout. That's the time people expect change, expect to have to learn new locations, new pathways. They can learn new methods as they become accustomed to the new arrangement. New methods must, of course, be carefully explained and their operation watched closely until they become established. Since a good new method contains less effort for the men, it is easy to explain as something to make it easier to do good work.



Figs. 5 and 6—The aisles formed in left grouping (Fig. 5) appear ideal, but could prove disadvantageous if an operator suddenly pushed back his chair into a person passing by. The angled machine arrangement at right (Fig. 6) gives each operator the protection of the corner of his machine. When he slides back, he doesn't block the aisle.

Prints 1 Million Addresses Per Day on Curtis Magazine

Stromberg-Carlson, Division of General Dynamics Corp., will deliver an electronic printer to the Curtis Publishing Co., Philadelphia, for use in printing address labels for Curtis magazines.

The equipment will be an S-C 5500 high speed electronic label printer combined with an M-60 auxiliary editing buffer. It will be capable of printing over one million address labels per eight hour day for the *Saturday Evening Post*, *Holiday*, and *Ladies Home Journal*.

All Curtis subscription information is being processed through an electronic computer and placed on magnetic tape. The Stromberg-Carlson printout system will further expedite magazine mailing. The electronic label printer utilizes a Charactron shaped beam tube and a XeroX Copyflo printer for rapid electronic printing. The M-60 editing buffer will handle up to four magnetic tape inputs, while the S-C 5500 will print simultaneously on four separate rolls of paper.

The S-C 5500 electronically registers address information and perforates continuous rolls of paper to label size so that addresses are prepared for Cheshire mailing equipment.

LPNA Name is Official

The name change from Lithographers National Assoc., Inc., to Lithographers & Printers National Assoc., Inc. is now official. Executive headquarters of the LPNA are located at 1025 Connecticut Ave., N.W., Washington 6, D. C. Oscar Whitehouse is executive director.

Exposition Poster Contest For Professional Designers

The call for entries for the poster competition by professional designers for the 7th Educational Graphic Arts Exposition has been put in the mail. First prize is $1000 and the second prize is $750 according to the announcement made by A. E. Giegengack, president and general manager of the Exposition which will be held in the New York (N. Y.) Coliseum, Sept. 6-12.

Judging and awarding will be conducted under auspices of the American Institute of Graphic Arts, New York. Arrangements for Institute supervision were made through Mrs. Edna Beilenson, president, and Robert Cato, member of the board of directors. The latter will serve as poster competition chairman. Jury members are Joseph Blumenthal, Mildred Constantine, Leo Lioni, Paul Rand and James Johnson Sweeney.

Design entries must be mailed by midnight, Friday, Jan. 30. The jury will meet during the week of Feb. 16-20, following which announcement of the prize winners will be made by Feb. 24.

Entry blanks and conditions of the contest can be obtained from American Institute of Graphic Arts, 5 East 40th St., New York 16, N. Y., or National Graphic Arts Expositions, Inc., 5728 Connecticut Ave., N.W., Washington 15, D. C.

Company Production Meetings Help Steer Plant Operations

By GORDON R. ROHDE, *Vice President, Reynolds & Reynolds Co., Dayton, O.**

ONE technique which enables a production executive to keep his finger on the many duties with which he is charged is through a production meeting held every week. This meeting should be set up for a definite day and at a definite time.

People attending the meeting should include both day and night superintendents, foremen, production control supervisors, supervisor of estimating, supervisor of order writing, and the management engineer, depending on the size of the operation. Of course, this could be either a small group or a very large group. The size of the group is not important, but certainly the things that can be accomplished in a meeting of this type held on a regularly scheduled basis are essential to good supervision.

Production Team Participates

In such a meeting you will have gathered together all the people who will play some part in each job that will be processed through the plant. The head of the estimating department where the inquiry had to be estimated before it even became a job. The head of the order writing department where the order is planned and written for production. The head of the production control department where the job is scheduled through the plant. The superintendent and foremen who are supervising the machines and the people in the plant.

Now if there were some 20 people in this meeting, each with an average of 20 years' experience in the printing business, you would have some 400 years of experience from which to draw. Can you conceive any production problem so big that it could not be solved by this combined experience?

The opportunity is unlimited for each foreman or supervisor to talk over the problems in his department and attempt to get help from other foremen and supervisors. The meeting also affords the opportunity for the production foremen to question the estimating supervisor on the amount of time allowed to complete specific operations. You can talk about how certain jobs were planned and make suggestions for possible better ways to handle them. The production control supervisor can discuss his problem of how all customers seem to run out of printed material before they re-order. Thus his reason for scheduling more hours of work for a department than there are actually hours available.

When to Use Overtime

If the latter problem does exist it becomes possible then for the production executive and superintendent to decide whether it will be necessary to work overtime. It is a lot better to use a little supervision and work overtime to stay out of trouble rather than to have to work overtime later on to get out of trouble. This meeting each week is a perfect setup to talk about production problems, how to solve these problems and have a complete understanding of each other's problems.

This meeting is also an excellent opportunity for the production executive to talk about the importance of new things going on within the company itself. It is the proper place for keeping foremen and supervisors well informed on new industry developments.

Aluminum Foil Cover—The Long Beach (Calif.) *Independent, Press-Telegram* claims it is one of the first newspapers to use an aluminum foil cover printed in color on a tabloid advertising section. Werner W. Sell, mechanical superintendent, said the run was made at 35,000 copies per hour; hand-pasters were made. Shown discussing the special wrap are Jack Porter (left), pressroom superintendent, and Robert Griffin (right), pressroom foreman.

Can Be a Training Ground

This meeting can become a training ground for new foremen and supervisors. It affords an opportunity to explain why a machine in their department, which is run by a $3 an hour operator, carries an hourly rate of some $7.50 for labor and burden alone. To this must be added selling and general administrative expenses, profit and commission. There is an opportunity to explain why chargeable as compared to non-chargeable time is important and has such a direct bearing on the hourly rate. The matter of spoilage in a department is another important factor; why spoilage must be paid for some way and why this tends to increase the hourly rate. Explain that some 20 or 25 factors go into making up this hourly rate and that every minute wasted, could be worth some 20 cents to the company.

If a foreman knows and understands these facts then he will be in a better position to talk to his people and make them understand why waste of time and material cannot be tolerated. It would take literally hours to enumerate the hundreds of advantages there are in having this weekly production meeting.

Production Planning

This job of production planning that must be done if each job is to flow through the plant in the best possible way is a big one. If this job is to be handled well it cannot be a hit and miss affair. It involves careful planning and record keeping, and must be supervised by an

(*Continued on Page* 83)

*From a talk delivered at Printing Industry of America's Fourth Production Conference held at Edgewater Beach Hotel, Chicago, Dec. 4-5, 1958.

Scheduling Helps Customer

SERVICE

. . . St. Paul printer installs a new scheduling department for control of plant's production.

By HORACE ANNIS, *Minneapolis Correspondent*

SIMPLIFIED production control has been the objective of H. M. Smyth Co., Inc., combination letterpress-offset printing plant in St. Paul, Minn. Its goal has been achieved through the installation recently of what is called the scheduling and customer service department which works with the weekly production schedule sheet illustrated here.

W. J. Hickey, president of Smyth, says success of the production control system is dependent not so much on the system itself as it is on the people who work with it and make it work.

The newly-created department has become the nerve center of the plant's operations. It has the responsibility for the control and processing of the company's entire line of commercially printed products which include labels, publications and advertising pieces.

System Starts with Salesmen

The system, as now established, functions as follows: When a Smyth salesman receives an order he must write up his own work ticket for the job. This is then typed by an office girl and reviewed again by the salesman. Every precaution is taken to assure that all information necessary for delivering a quality job to the customer is recorded properly.

The job ticket next passes to the scheduling and customer service department. At this point it becomes the responsibility of the supervisor in charge of scheduling and customer service to be sure all materials necessary to complete the job are assembled at the proper time. He immediately does two things: (1) Enters the job on the production schedule sheet. (2) Gives the purchasing department instructions for requisitioning stock and other materials needed for that order.

Scheduling Each Process

Because Smyth is a two-process operation it has established means for handling work which will be done by letterpress as well as that for the lithographic departments. Each process department is furnished a work schedule which designates its participation on a new job received in the plant. There is also a safeguard which alerts these departments when a new job is about to be assigned to them. This is the production schedule copy which serves to tip off the department on new orders and prepares them for it when they arrive in the respective department.

When a new job commences its work route through the plant it is first entered in a record. This is designed to show the number of impressions scheduled ahead for each piece of press equipment in operation. This is intended to eliminate embarrassing situations for a salesman and disappointment for the customer. From this record the salesman can determine his chances of getting a certain job done on a projected delivery date. The salesman, on the other hand, is not permitted to promise a delivery date without first checking with the production department to determine availability of equipment.

Each production department is required to maintain an accurate production record similar to the master production schedule kept in the scheduling and customer service department. The supervisor in charge of the scheduling department, however, personally visits each department to stay on top of the jobs. This provides him with accurate and timely information on the progress of each order.

Knowing the Week's Work

Another arm of Smyth's system is called the weekly production schedule furnished for each department. This schedule is intended to show each department approximately the work to be processed on a given week. It is accomplished by means of a typed sheet following an established format.

Shipments of finished orders are the responsibility of the bindery superintendent. This is planned intentionally so there is little chance of delay between the time the job is finished and when it is delivered.

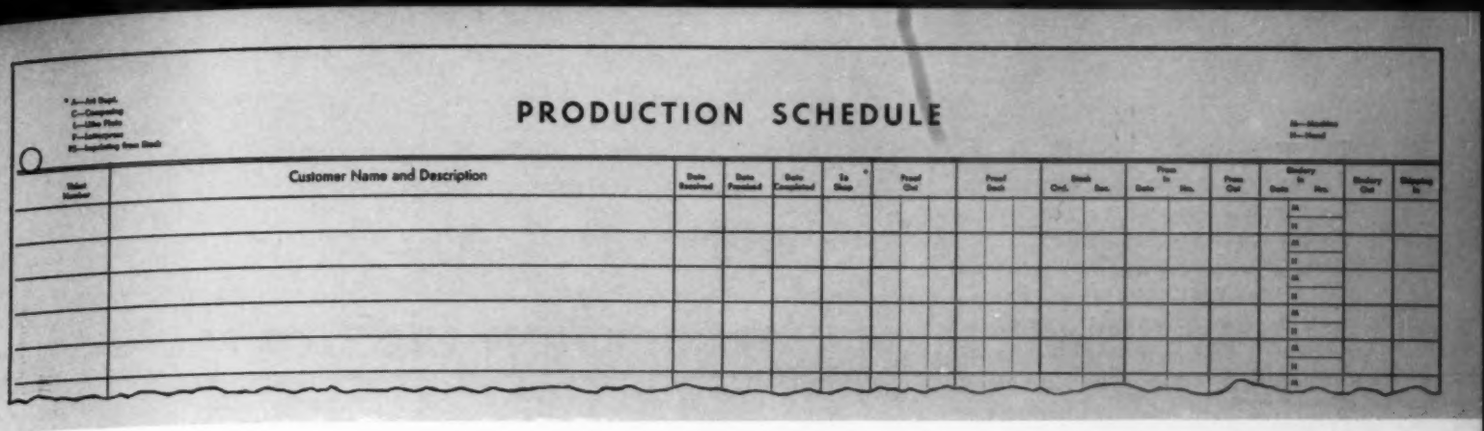
The individual salesman is required to keep a close watch on his particular orders. Proofs are funneled through the scheduling and customer service department to the respective salesman who also has the responsibility for the return of the corrected or OKd proofs to this department.

Vice Pres. W. J. Hickey, jr., in explaining the system, was queried about Smyth's method of handling rush orders. It appears the plant has little difficulty in this. Hickey claims the company has established a reputation for keeping promised delivery dates. He says the customer does not have to order the job for "yesterday" in order to get it the day after tomorrow.

Simple—but Effective

The production schedule (illustrated) is a model of simplicity and clarity. It has been confined to include only the essential information needed by the scheduling and customer service department. It also affords Smyth officials with the answers on the progress of any single job in the plant.

The schedule sheet measures 17 in. wide by 11 in. deep. It accommodates entries for: Number of the job; customer's name and description of the job; date order was re-



PRODUCTION SCHEDULE

Ticket Number	Customer Name and Description	Date Received	Date Promised	Date Completed	To Shop	Proof Out	Proof Back	Stock Ord.	Stock Rec.	Press In Date	Press In Min.	Press Out	Bindery In Date	Bindery In Min.	Bindery Out	Shipping In

Schedule sheet used in the plant of H. M. Smyth Co., Inc., St. Paul, Minn., for controlling both letterpress and offset production. It includes entries for essential information needed by the scheduling and customer service department. Dates and times are marked on the sheet under the appropriate headings. A letter code (upper left) designates the method of production when the job is sent into the plant. Original form measures 17 in. wide by 11 in. deep.

ceived; date job has been promised; date job was completed; time job was sent into the plant; time of proof out; time of proof back; when stock is ordered and when received in the appropriate department; time on and off the press; time received in bindery and time out; and time it arrives in shipping department.

Explanation of Letter Code

A letter code is used in conjunction with the schedule sheet to designate the method of production when the job is sent into the plant. The code works as follows: A—art department; C — composing; L — litho plate; P—letterpress; FS—imprinting from stock. Under bindery operations a letter code designates whether machine or hand operations were performed.

In 1956 the Smyth company moved into a modern windowless plant (see *Printing Equipment Engineer*, March 1957, P. 59) designed and equipped for high quality control standards. Greater service to customers will result by combining control of quality with planned production scheduling.

Sta-Hi/Slants, a New Publication

A recent issue of *Sta-Hi/Slants* consists of eight pages, 8½ in. by 11 in. This is a new company publication sponsored by Sta-Hi Corporation. It is well illustrated.

Editorial content is devoted to discussion of ROP newspaper color printing and of course, to Sta-Hi's equipment for producing stereotype color plates.

The services offered by the corporation's new subsidiary, Sta-Hi Color Service, are explained.

Sta-Hi/Slants will be mailed regularly to anyone employed in the printing industry. Name, address and business connection required. Send request to Sta-Hi Corporation, 235 W. Washington Blvd., Whittier, Calif.

New Editor and Publisher Appointed

Announcement of the appointment of Edward H. Owen as editor of PRINTING PRODUCTION and elevation of Paul B. Holder to the post of publisher and business manager has been made by Clarence Seaman, president of Willsea Publishing Co., publishers of the magazine.

Owen succeeds MacD. Sinclair who remains in an active capacity on the editorial staff as consulting editor and will continue to serve as secretary and director of the company. Holder is successor to Don Will who continues as vice president of Willsea and a member of its board of directors.

Both Sinclair and Will have directed the operations of the magazine in their respective capacities since 1930 when *Printing Equipment Engineer* was formed as successor to *Typesetting Machine Engineers' Journal*. Under their tenure the magazine grew to its present circulation of 16,000 printing production executive readers. They will continue to maintain offices at the magazine's editorial and business offices in Cleveland.

OWEN

HOLDER

The new editor has been a member of the magazine's editorial staff since 1948, except for a brief period when he served as assistant editor of *Printing Magazine*. Owen is a graduate of the printing school of Rochester Institute of Technology and of a similar course at Wentworth Institute, Boston. He has actively participated in many Graphic Arts projects. Most recently he served as president of the Cleveland Craftsmen's Club.

Holder has represented PRINTING PRODUCTION in the central district territory since joining the magazine's advertising and promotion department in 1956. He more recently served as assistant publisher. The newly-named publisher is a graduate of Penn State University and has served in sales capacities with other Graphic Arts companies. He is active in several Graphic Arts organizations.

The publishers of PRINTING PRODUCTION have recently undertaken a program of an improved magazine for its Graphic Arts readership. One of the major developments was its change of name in mid-1958 from *Printing Equipment Engineer*, a title which it held for 28 years. Among other changes already installed have been a more easily read type dress and improvement in general format. Further improvements benefiting its reader audience are in the planning stage.

Printing firms send 250 representatives to Chicago for Fourth Production Conference of Printing Industry of America

PRODUCTION EXECUTIVES

Seek Better a

THE nation's recent economic crisis has made printing plant management more conscious of its production practices. With this statement, Harold N. Cornay opened Printing Industry of America's Fourth Production Conference at Edgewater Beach Hotel, Chicago, on Dec. 4-5. Cornay, who is president of the Press of H. N. Cornay, New Orleans, served as chairman of the meeting which was attended by 250 printing production executives from plants in the United States and Canada.

A series of sessions were conducted on such topics as: Quality control, human relations, cost reduction practices, work simplification, significance of new developments and general problems of various size plants. One feature of the program was a special forum in which were discussed new developments in both offset and letterpress. It included parts taken from the highly successful New York Letterpress Forum (see PRINTING PRODUCTION, Nov. 1958, p. 32).

Progress in Next 10 Years

A prediction that young people today would see more advancement in the printing industry in the next 10 years than has been seen in the past 30 years, was made by the President of PIA, Kurt E. Volk, who is also president of Kurt H. Volk, Inc., Bridgeport, Conn. He added that the conference would provide an opportunity for production people to learn the methods of control for improved operation.

The importance of production management was emphasized in the keynote address by Gordon R. Rohde, vice president, Reynolds and Reynolds Co., Dayton, O., who labeled his talk *Super-Vision vs Supervision.* He described it this way: "If you have good competent production management you have a successful business. If you have just average production management you have just an average business. And, if you have poor production management you are on the skids and you'd better wake up fast."

Rohde made several suggestions to production executives as follows: You must put forth extra effort; sell yourself on the idea that the job you are doing is not good enough; you must understand problems faced in other areas of the business; you should be able to work out all problems in the plant; you must recognize you cannot carry the complete load alone; you must possess observation and analyzation; you must have equipment of the very latest design; must have a good plant layout; must have pleasant surroundings. He also suggested holding a regular plant meeting as essential to good supervision of all department heads (see P. 29, this issue).

Who Determines Quality

Staying Out of The Rough was the subject selected by Evan D. Scheele, vice president and director of central management staff, Rapid American Corp., New York, N. Y. to point out how we might avoid many of the troublesome production delays and improve quality. Under the broad subject of quality control, Scheele gave a clear analysis in layman's terms of the steps that could be taken to control materials, plates and equipment and their processing from the viewpoint of corrective action to be taken.

Two key figures at the Production Conference were, left to right, Harold N. Cornay, general chairman of the Conference and president, The Press of H. N. Cornay, New Orleans, La., and John H. Goessele, jr., president, Printing Industry of Illinois, and president, H. D. Owen & Co., Maywood, Ill.

The speaker emphasized that many times it is the customer who sets up the design quality of a job. The printer, he said, can only control its production quality. He said printing plant management must take into consideration what a consumer will select as quality printing. Scheele maintained there must be increased quality in every phase of printing if we are to progress. It is only through quality control, he added, that we can get this better quality. He also said top management sets the policy of the quality of the customer's product.

Scheele advised a means of control for printing plants. First, define what you mean by a quality product. Show workers a panel of defective products they are producing and let the employees see which ones are rejected. Second, measure your quality. Train and show the workers how to inspect, and also show supervisors how to train people. Lastly, take corrective action once the facts are obtained.

The speaker listed the general causes of poor quality as follows: Lack of good specifications, lack of worker skills, improper attitudes, carelessness, poor equipment, poor materials and poor supervision. He concluded that more can be done to improve quality through supervision than at any other level.

By EDWARD H. OWEN
Associate Editor

...ant Practices

The subject of quality was pursued by those attending the Production Conference in individual seminar sessions arranged by size of plant and various printing processes used. This technique provided participants an opportunity to consider the information presented by the speaker and discuss how it might be applied directly in their individual plants.

Price is Determining Factor

In the small plant meeting, production executives felt that price is the determining factor in quality. It appeared that many plants determine the quality as the best they can get and according to the price charged for the job.

The printers in this meeting also thought that the bindery is the most important department of six quality control check points. This part of a plant's operation has to take the finished product and do the best with it.

The small plant group said that personnel must know their jobs. A plant can use the best of material, but if the people don't know what to do with them, you will not have quality printing.

They also considered the possibility of a small plant checking incoming materials. One plant executive said his company tells the customer when a plate won't print well, when the ink suggested for the job is not right, etc. Most felt that it was economically infeasible to test incoming materials for a job.

Also, in most plants it is usually the individual pressman or foreman who is responsible for the quality of the job. Once a job has been OK'd and the desired quality seen, then plant executives have to depend on the individual pressman to maintain that quality. Many plants have no means for a continuing check.

In the medium size plant meeting,

Production Executives Confer

(All names read from left to right)

1—John C. Ouderkirk, chief estimator, Inland Lithograph Co., Chicago; Charles A. Conrad, Western Printing & Litho Co., Racine, Wis.; Phil E. Bergsieker, vice president and production manager, Cavanagh Printing Co., St. Louis, Mo.; Clayton G. Orcutt, Management Institute, University of Wisconsin, Madison; William J. Henretty, personnel director, Jensen Printing Co., Minneapolis, Minn.

2—L. E. Oswald, treasurer, E. F. Schmidt Co., Milwaukee, Wis., and president of Lithographers & Printers National Assoc.; George P. Rauscher, vice president of production, Bradford-Robinson Co., Denver, Col.; Max Wheelwright, plant manager, Wheelwright Lithographing Co., Salt Lake City, Utah.

3—Max W. Roos, president, Eveready Manifold Corp., Chicago; C. R. Dickerson, secretary-treasurer, Rotary Forms Press, Inc., Hillsboro, O.; Bruce Serne, vice president, Clarkson Press, Buffalo, N. Y.

4—John Hegstrom, production control, Edwards Brothers, Inc., Ann Arbor, Mich.; Stan Hadden, general manager, Louisiana Composition Co., Baton Rouge, La.; Jim Bennett, estimator, Central Michigan Press, Battle Creek, Mich.

5—L. M. Francis, plant manager, Recording & Statistical Corp., Danville, Ill.; Elmer E. Cramer, plant manager, Eureka Specialty Printing Co., Danville, Ill.; W. H. Mitchell, assistant superintendent, and Jay R. Walker, general production manager, Eureka Specialty Printing Co., Scranton, Pa.

participants discussed the tendency to let a quality control department be solely responsible for the quality of work. Some cases were reported where the pressman did not seem to care. It was suggested that such plants adopt a demerit system and grade the workers on the quality of their work.

In some plants the demerit system, it was reported, has been successful. A grading system has been set up to comply with hourly checks for color, register, etc. These companies have also been successful in selling the idea to employees. It has been explained that the quality control department functions to help them grade the quality of their work. They have also been told it affords them an extra pair of eyes on each individual job. The scoring system is transferred to a master control chart each month which shows the quality for that pressman as well as for the individual press.

Scheele answered a series of questions on quality control at the conclusion of the individual plant meetings. He insisted that production executives must assign someone the responsibility for quality control in a plant.

Blame for Sloppy Plants

He was asked what could be done to correct improper attitudes and carelessness. Scheele likened this situation to an entire plant which was sloppy. If such a condition exists, he said, you will usually find the offices of management are sloppy. He insisted that people have got to be led. The attitude of workers stems from their leaders.

He was asked what part of a sales dollar should be spent on quality control. This would vary according to the size of the plant. He said you cannot measure quality control in terms of cost. You should measure it in terms of savings. He added, if you don't install quality control you will never know how much it costs in increased or lost business.

How does quality control effect production? It can only improve it, he said. Quality control only identifies defects. It is up to the supervisor to take corrective action.

Increasing output was the problem tackled in a session entitled *What are The Speed Limits in Your Plant?* Grant Herman, Kable Printing Company, Mt. Morris, Ill., and chairman of the PIA Production Standards Committee, served as chairman. The session dealt specifically with the questions of: How fast can your equipment run effectively? How can output be measured? What steps can be taken to bring increased productivity in output in line with obtainable standards? Three interesting case histories were given to illustrate wide variations of the use of production standards with different types of printing operations.

Printers attending the PIA Production Conference could blame this typo error on hotel compositors. Unnoticed by most, the sign appeared at the time speakers were discussing printing quality control.

Joseph Edwards, president, Edwards Brothers, Inc., Ann Arbor, Mich., gave a general case history illustrating the complete application of standards to a medium size plant producing a wide variety of work. Fred P. Hofferth, vice president and production manager, American Book Co., Cincinnati, O., presented a case history of the application of standards to a wide scope of bindery operations (see P. 52, this issue). Elmer J. Grover, production manager, Connecticut Printers, Inc., Hartford, Conn., revealed the procedure followed for evaluating production through the development of procedures in a medium to large size plant producing some specialty products.

How to Improve Efficiency

In the individual plant meetings which followed these presentations, the medium size litho printers discussed means of improving efficiency in their plants. The following points were suggested: Put estimating standards in the plant; establish a standard; use work simplification; define the job; study down time; check time keeping procedures; establish a press log; talk to foremen and people in the plant about standards; and get management to understand its own program.

Importance of People

PIA President Volk discussed techniques through which management can get the interest and participation of plant employees in programs designed to change attitudes and increase productivity. He staged a demonstration of the WE program procedure which was developed by the Master Printers Section of PIA.

Volk held that the best method for improved production is through good human relations. People who work in harmony will produce more than people working in conflict, he said. People like to feel they are in on things. He contended that the WE program eliminates violating people's dignity. It teaches you how to handle people and how to become creative leaders.

The PIA president told the printing production executives that the most important part of their job in management today is knowing how to work with people. He felt that people can make the difference in production records and then appealed to the audience to adopt the WE philisophy.

Cost Reduction Methods

Modern cost reduction techniques received major attention at the PIA Production Conference. Four speakers undertook the job of explaining methods by which printing management could effect reduction in over-all costs. The chairman of PIA's Committee on Personnel Management, Charles A. Conrard, Western Printing and Lithographing Company, Racine, Wis., presided at this important session.

The foreman is a key man in cost control since he manages people, said the first speaker, Clayton G. Orcutt, Management Institute, University of Wisconsin, Madison, Wis. He acknowledged that it is people who save the money in a plant, but it is the foreman who lends direction to their movements.

Orcutt explained that in order to get cost control the supervisor must: (1) Know exactly what is expected;

(2) Have an opportunity to perform; (3) Should know how well he is doing; (4) Receive the assistance needed; (5) Be rewarded.

Foremen Have Tough Job

Selection and training of foremen represented another area in the cost reduction discussions. This was handled by William J. Henretty, personnel director, Jensen Printing Co., Minneapolis, Minn. He said the foreman has a tough job changing work attitudes and building an effective team effort.

On foreman selection, Henretty had this to say: "In too many cases when we pick a foreman, we take the fellow who is our best worker, give him a premium, turn him loose without his even having a good idea of what the job amounts to and wonder why he doesn't set the world on fire. And the poor guy doesn't even know where to find a match."

He told of the thinking of supervisors taken from his experience in training foremen groups. Many, he said, don't understand certain of

Production Men in Chicago

(All names read from left to right)

1—Tom E. Taylor, plant superintendent, R. R. Donnelley & Sons Co., Crawfordsville, Ind.; Richard C. Bann, president, Bann, Inc., St. Paul, Minn.; Verne Myring, vice president and superintendent, Holden Printing Co., Minneapolis, Minn.; David W. Jones, executive director, Graphic Arts Assoc. of Wisconsin, Milwaukee, Wis.

2—Kenneth A. Priebe, vice president in charge of production, Mossberg & Co., South Bend, Ind.; Phil Bergsieker, vice president and production manager, Cavanagh Printing Co., St. Louis, Mo.; Louis Hamlin, production manager, Midwest Printing Co., Minneapolis, Minn.

3—Albert Bertoni, vice president and superintendent, and Charles E. Schatvet, president, Guide-Kalkhoff-Burr, Inc., New York, N. Y.; Elmer Grover, production manager, Connecticut Printers, Inc., Hartford, Conn.

4—Don M. Nixon, president, Bodine, Inc., Michigan City, Ind.; Tom McGill, assistant vice president of production, Cullom & Ghertner Co., Atlanta, Ga.; Art Johnson, Printing Industry of America, Washington, D. C.; Paul D. Cooper, plant superintendent, F. J. Heer Printing Co., Columbus, O.; E. J. Brumder, assistant to president in production, North American Press, Milwaukee, Wis.; Tom Laffey, assistant production manager, Western Printing & Litho Co., Racine, Wis.

5—Robert Wells, production planning, Al Moddelmog, plant manager, Western Lithograph Co., Wichita, Kan.; Charles E. Dunn, production manager, McCormick-Armstrong Co., Wichita.

their responsibilities. The only time they hear from their superiors is when a job goes sour. They are kept so busy that they can't do a proper job of instruction for workers and apprentices. They don't know where they stand with the boss. Some of them are scared to death of losing their job. Too many think that management judges them by their own personal business.

Work Saving Ideas

Cost reduction through work simplification was the topic of Phil E. Bergsieker, vice president and production manager, Cavanagh Printing Co., St. Louis, Mo. He described several ideas which have resulted in savings in the Cavanagh plant.

One is a board on which a pressman may hang all his wrenches in an orderly manner. When a wrench is needed it is not necessary for the pressman to hunt through a tool box full of junk and to waste five or ten minutes until he finds the right wrench.

Another idea is individual ink racks for each press. Instead of having exeryone store ink in a main stock room, they now have individual cabinets for each press. The ink is stored in a much more orderly fashion and is easier to find. These racks have become a matter of personal pride in maintaining them in a clean and orderly fashion.

One worker came up with the idea of making more trucks for the delivery end of the press, thus eliminating a lot of repiling of stock onto skids. The pressman can get more productive hours on his press and not have to unload a truck to keep his job running.

Filing of Repeat Jobs

One other work simplification idea was credited with saving many hours in the system of filing standing forms. Previously they were handled in this manner: After a job was printed, a proof of the form was pulled and the slide number written on the proof. If the job was for Smith and Co., it was put in the S file. If the job was rerun six months or a year later, it was necessary to pull out the S file and leaf through 100 or 200 sheets to find the file sheet. This sometimes took as long as 15 min. to find.

Attending Production Conference

(All names read from left to right)

1—DeWitte T. Cross, jr., president, Birmingham (Ala.) Printing Co.; Carl Schafer, manager of press division, Penton Publishing Co., Cleveland.

2—Harold Newman, production manager, Straus Printing Co., Madison, Wis.; Clem Smolinski, plant manager, Wetzel Brothers, Milwaukee; Wesley Stiemke, estimator, Straus Printing Co., Madison, Wis.

3—Don Sommer, Printing Industry of America, Washington, D. C.; Joseph W. Edwards, president, Edwards Brothers, Inc., Battle Creek, Mich.

Under the new system, the file sheets are still maintained, but the file number is now placed on the job ticket. When the rerun comes through, an office girl looks up the old job ticket and puts the standing file number on the new job ticket. All the composing room now has to do is refer to the new job ticket for the slide number. It is not necessary to consult the S file.

The concluding speaker on the program was John C. Ouderkirk, chief estimator, Inland Lithograph Co., Chicago. He illustrated how his company translated production factors into dollar figures, identified the areas which represented the greatest potential for cost improvements, and undertook an effective program for cost reduction.

At the cost reduction session, there appeared to be some misunderstanding about PIA's PAR Production System. It was emphasized by Donald E. Sommer, secretary of PIA's Master Printers Section, that PAR figures do not represent averages. Rather, they represent high standards which, in some cases, cannot be achieved in every plant. He added that they are not ridiculous figures and have been reached by some plants.

The concluding session on the significance of new developments was conducted under the chairmanship of Marvin C. Rogers, Graphic Arts consultant, Flossmoor, Ill. It included talks by James V. Elliott, training director, New York Employing Printers Assoc., New York, N. Y., on operations preliminary to platemaking; Michael H. Bruno, research director, Lithographic Technical Foundation, Chicago, on developments in lithography; and by H. A. Gladden, district manager, E. I. du Pont de Nemours & Co.,

(*Continued on Page 82*)

Participating in the forum on the significance of new developments at the PIA Production Conference were, left to right: J. Homer Winkler, technical adviser, Battelle Memorial Institute, Columbus, O.; James V. Elliott, training director, New York Employing Printers Assoc.; Michael H. Bruno, research director, Lithographic Technical Foundation; H. A. Gladden, district manager, E. I. du Pont de Nemours and Co., Inc.; Hugh B. Gage, manager, planning and products section, Du Pont, and Marvin C. Rogers, management consultant, Flossmoor, Ill.

Halftone Making for

ENGRAVING-OFFSET

Theory and techniques are explained

By GYAN P. MADAN

School of Printing Management, Carnegie Institute of Technology, Pittsburgh, Pa.

PART I

THE theory of halftone negative making in its simplest form is explained in this series of articles, together with practical instructions. The methods discussed have been worked out and developed through our own work and experience and to suit conditions at Carnegie Tech according to the equipment available in our laboratory.

Due to variable equipment, materials, methods and plant conditions, these methods actually are not recommended as standard for all plants, but only as guides. The information given here must be adjusted according to the conditions in each plant.

The story of making halftone negatives can be divided into three groups as follows: (1) Making halftones with regular glass halftone screen. (2) Making halftones with magenta contact screen, and (3) Making halftones without the halftone screen.

Glass Halftone Screen

Most commonly used for making halftone negatives is the cross lined screen. The screen pattern is obtained by superimposing two glass plates. In each of the glass plates equidistant black lines of equal thickness are ruled at an angle of 45 deg. The two glass plates are placed one on the other so the ruled lines cross each other at right angles. The glass plates are then sealed or cemented together. The result is a regular mesh pattern consisting of a series of rectangular openings. The screened plate is placed in front of the sensitive emulsion on film or plate in the camera during exposure to obtain the halftone negative. The number of lines is the ruling of the screen. Rulings in general use range from 60 lines to 175 lines to the linear inch, at a 1:1 ratio. (Fig. 1.)

Low rulings generally are called *coarse* and high rulings are called *fine*. The finer the ruling, the better the rendering of small differences in gradation in the original, commonly called detail. But the plate surfaces are not so easy to print, better ink and smoother paper being required.

To obtain the halftone negative, the screen is placed in the camera between the lens and the photographic film at a predetermined distance. The screen breaks up the continuous tone nature of the original copy into dots of various sizes but of equal density according to the light reflected from the copy through the lens to the photographic film.

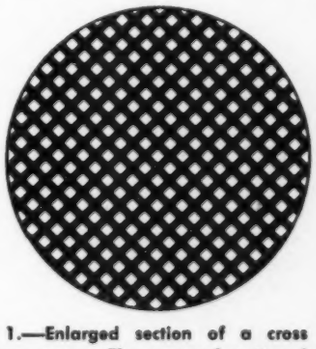


Fig. 1.—Enlarged section of a cross line halftone screen. The screened pattern is obtained by superimposing a ruled glass plate over a similar plate, with the rulings at right angles.

Screen Distance

The distance at which the screen is placed in front of the photographic film is called the *screen distance*. Setting of correct screen distance forms the basis of working with the glass halftone screen. Accurate halftone reproduction is dependent upon accurate screen distance. It is the size and structure of the halftone dots which determine the tonal characteristic of the original copy. Thus this screen distance should be accurate and should neither be too close nor too far from the photographic film. The diagrams in Fig. 2 clearly show that only correct screen distance produces the correct dot formation required in the highlight and shadow areas. If the screen is too close to the photographic emulsion, the dots are too small in the highlights and too large in the shadows. Similarly, if the screen is too far from the photographic film a fuzzy dot is produced which overlaps in the highlights and is weak in the shadows.

Screen distance is dependent upon the following factors: (1) Screen rulings; (2) Size of lens aperture or stop, and (3) Camera extension *i.e.*, degree of reduction or enlarge-

In simple words, we can say the finer the rulings the smaller the

screen distance and *vice versa*. The larger the aperture the smaller the screen distance and *vice versa*. A decrease in camera extension requires a decrease in screen distance and *vice versa*. But this does not solve our problem in finding an easy method to determine the screen distance.

Finding Screen Distance

There are two methods of finding the screen distance. One is by means of visual focussing, and the other is by way of mathematical calculation. In the first method the screen has to be focussed visually to obtain the correct dot formation, each time, according to the camera extension and the lens aperture used. By the second method the screen distance can be calculated with the help of a mathematical equation and a scale on the gauge fitted at the side of the camera. As the first method demands high skill and experience on the part of the operator, the second method is generally preferred. The mathematical equation

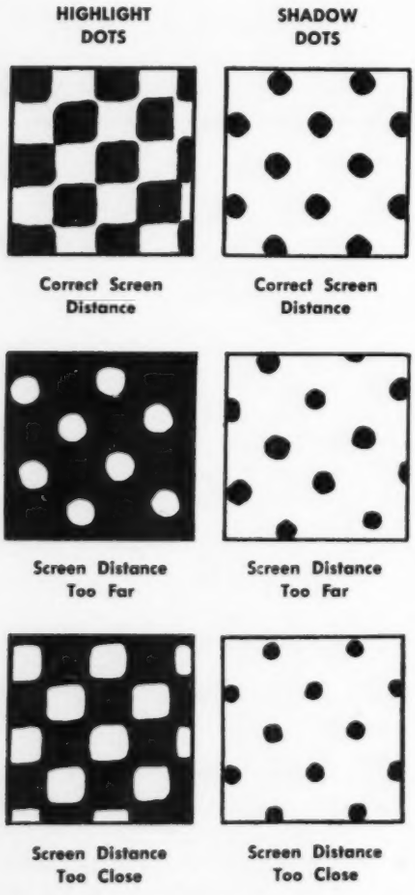


Fig. 2.—Diagrams show effect of dot formation in negative at different screen distances from film.

TABLE I

$$\frac{\text{Screen Distance}}{\text{Unit of Screen Aperture}} = \frac{\text{Camera Extension}}{\text{Diameter of Lens Aperture}}$$

TABLE II

Diameter of lens aperture = 19/32 (*f* is replaced with 19, which is the focal length of the lens)

Camera extension = $(1 + m)f$ = $(1 + 1)19$ = 38 (Where m is the degree of enlargement or reduction and f is focal length)

Unit of screen aperture = 1/240 (Because there are 120 solid and 120 transparent lines in the screen used)

Now by substituting these figures in the screen equation we get:

TABLE III

$$\frac{\text{Screen Distance}}{1/240} = \frac{38}{19/32}$$

or, Screen Distance × 19/32 = 1/240 × 38

or, Screen Distance = 1/240 × 38 × 32/19 = 4/15 in.

used is called the *screen equation* and can be expressed as in Table I shown above.

For example, if we are copying at same size with 19 in. lens at *f* 32 and using 120 line screen, then the screen distance in this case can be calculated as in Table II.

The answer thus obtained gives us the screen distance in inches. But as the screen gages are calibrated to 1/64 in. scale, so the screen distance thus obtained is multiplied further by 64. Therefore the final answer will be as in Table IV.

TABLE IV

Screen Distance = 4/15 × 64 = 256/15 = 17 in 64th in. scale

In this way, one can calculate the screen distance according to his own working conditions. This still does not seem like a very convenient method. The reason is that whenever a change takes place in reproduction size and lens aperture, it will be necessary to alter the screen distance.

Keeping this problem in view, another method has been developed in which the screen distance is kept constant for one particular screen while accurate dot formation is obtained by altering the lens aperture according to the size of reproduction *i.e.*, camera extension. This method is called, *the ratio line system of working*. A ratio line can be defined as the ratio between the camera extension and the lens opening of the camera.

The most common ratio lines used in the Graphic Arts industry in the United States and abroad are 64 and 90. (The latter require twice the exposure of the former.) Although practical working conditions have proved that the negatives made under either of these two ratio lines will exhibit no difference whatever in quality, the use of the 64 ratio line is generally preferred. It is due to the fact that when working with average line copy, using lens aperture *f*/32, for same size reproduction, the relation of the diameter of lens aperture to the camera extension comes to 1:64. So the same ratio is found convenient by many workers for halftone reproduction as well.

Setting Screen Distance Using Ratio Line System

To start the work with the ratio line system the first and the most important thing is to set the screen distance. In this case the distance can be calculated easily as follows:

Screen distance = Unit of screen aperture × 64 or 90

For example the screen distance for 120 line screen, using 1:64 ratio in the scale of 1/64 in., will be as follows:

Screen distance = 1/240 × 64 × 64 = 17

And the screen distance for the same screen, using 1:90 ratio in the scale of 1/64 in., will be:

Screen distance = 1/240 × 90 × 64 = 24

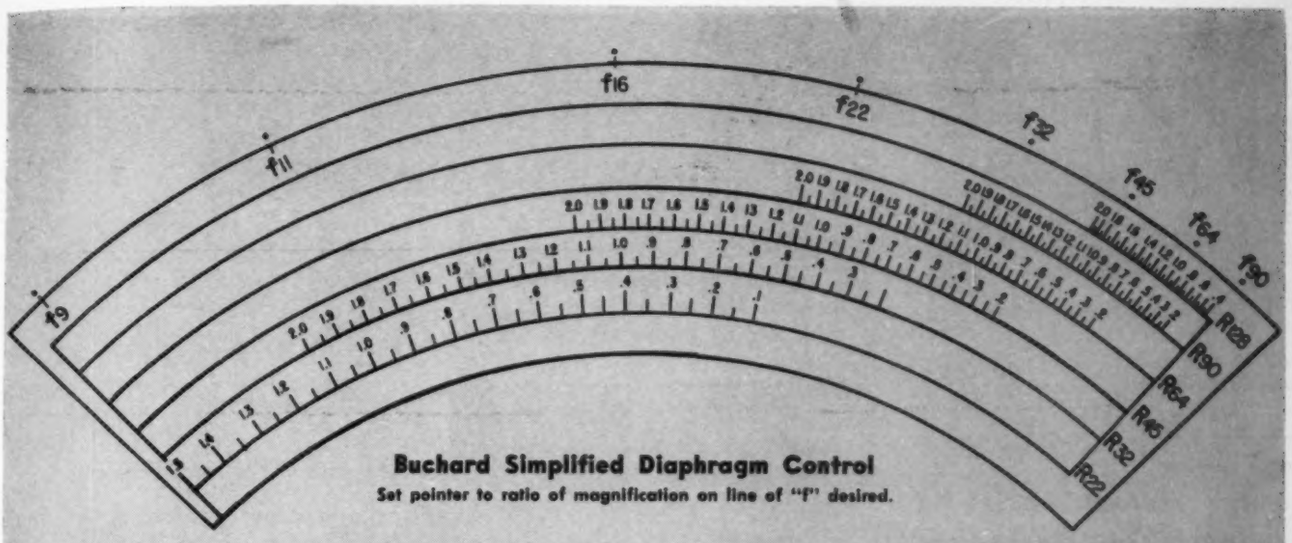


Fig. 3.—Reduced reproduction of the diaphragm control device developed in the photolithographic laboratory at Carnegie Institute of Technology.

This is just one example showing how one can calculate different screen distances for different screen rulings according to the ratio line to be used. One more thing which I must point out here is that the screen distances calculated in the example just given are from the surface of the cover glass of the screen, while the actual screen distance is measured from the ruling itself (center of the screen) to the emulsion surface of the film. Therefore, when calculations are made from the surface of the cover glass, allowance must be made for the thickness of this glass. Thickness of the cover glass varies with the size of the screen and is marked on the cover glass side of the screen by the manufacturer. This marked side always must be placed facing the sensitive emulsion.

In case the cover glass is not marked, the thickness generally accepted is 3/32 in. One-third of this, or 1/32 in., is subtracted because the cover glass is two-thirds more dense, optically, than air, and thus affects the transmission of light.

Having established the method of finding the desired screen distance, it now becomes necessary to set the lens opening to the required diameter. The diameter of the lens opening will vary with variations in the scale of reproduction, but will not cause any change in screen distance for a particular screen.

To obtain the correct diameter of the lens opening the camera extension is divided by the ratio number which was used for setting the screen distance. The camera extension can either be calculated by the formula explained previously or can be read on the tape of the camera. For example, if we are using 64 ratio line, then

Diameter of lens aperture = camera extension/64

The answer thus obtained can further be converted into *f* numbers by simply dividing it into the focal length of the lens. An example is shown in Table V.

TABLE V

Camera extension = 38 in.,
Focal length of the lens = 19 in.,
Ratio line used = 1:64

Then the diameter of lens aperture = 38/64 or, in other words, the *f* number will be = 19 × 64/38 = 32

In this way, each operator can either prepare a chart of *f* numbers for different sizes of reproductions using one particular ratio line or alternatively he can make use of many mechanical devices available on the market. A simplified diaphragm control device as developed by Kenneth R. Burchard, Asst. Dean in our laboratory is shown in Fig. 3.

Simplified Diaphragm Control

The device shown in Fig. 3 is mounted on the lens of the camera. A pointer movement synchronized with the lens opening is attached to it. Calculating the lens aperture is a simple operation. The pointer is set on the scale on the figure indicating the size of reproduction like, 1, ¾, ½ and so on. This in result gives the right lens opening. The setting, however, is made on the line corresponding to the ratio line used such as, R.90, R.64, R.45, etc.

Similar devices available include Robertson diaphragm control, Levy diaphragm indicator, Douthitt lens scale, Gaebel lens scale and Fruwith lens scale. All these devices are intended to make the procedure of halftone photography as simple as possible.

In Part II of this four-part series, exposure and development problems connected with halftone photography will be discussed.

Photocomposition Workshop To be Conducted by ITCA

A Photocomposition Workshop will be held by the Intl. Typographic Composition Assoc. at the Penn Sheraton hotel, Pittsburgh, Pa., on Jan. 23-24.

The sessions are being planned to help ITCA members answer timely questions on photocomposition. The program is especially designed for owners, managers, technicians and operators.

Some of Friday's sessions will be held on the Carnegie Tech campus, the remainder at the Penn Sheraton. Transportation provided to and from the campus.

Hotel reservations should be sent directly to the Penn Sheraton. Reservations should be sent to W. E. Switzer, ITCA executive secretary, 1015 Chestnut St., Philadelphia 7. Registration fees: Member-Plant personnel, $17.50; nonmembers, $25; includes luncheon, dinner and cocktails, bus transportation.

RESEARCH *Activities in Printing Industry*

Color Center Opened by Interchemical — A central headquarters for basic research, consultation and information in the field of color has been established in New York, N. Y., by Interchemical Corporation at 432 W. 45th St.

The new Color Center will serve not only the Interchemical operating divisions but those indirectly allied to their field of interest. Liaison with scientific societies, industry associations and other groups concerned with the use of color will also be maintained. Director of the Center is F. L. Wurzburg, jr.

Basic research will be conducted on improved techniques for color matching and improved methods for establishing color standards and tolerances. In addition, Interchemical's divisions and their customers will be able to consult the Center on basic color theory and its many industry applications.

Gravure Technical Assoc. Meets—The Gravure Technical Assoc., with membership from 175 separate firms, will hold its 10th Annual Convention Mar. 4-6, 1959, at the Drake Hotel, Chicago. Purposes of the GTA include promotion of standardized equipment and practices and distribution of technical knowledge relating to gravure. The association also encourages use of gravure printing through agencies, advertisers and packaging groups.

Directs Gifford-Wood Research—Hans H. Sonderegger has been appointed director of engineering and research of Gifford-Wood Co. by

SONDEREGGER

HARTSUCH

Orlan A. Johnson, president. Sonderegger is a graduate engineer of the Federal Institute of Technology, Zurich, Switzerland, and a specialist in the field of conveyor engineering.

Hartsuch Rejoins LTF—Dr. Paul J. Hartsuch rejoined the research staff of Lithographic Technical Foundation on Jan. 2 as technical assistant to Research Director Michael H. Bruno, according to W. F. Cornell, divisional president of Printing Ink Div., Interchemical Corp. and Andrew Donaldson jr., general manager, Strobridge Lithographing Co. and president of LTF. Hartsuch first joined the LTF research staff in 1945. In 1950, he joined the International Printing Ink Div., Interchemical Corp. as lithographic consultant. Hartsuch is a past president of the Technical Assoc. of the Graphic Arts.

Flader Writes on Letterpress Research

Louis Flader, consultant for the American Photoengravers Assoc., following the association's recent Cincinnati convention, said:

"Letterpress printing, often referred to as that 'old' printing method, has been backward in many respects. This attitude is typical of letterpress printers and of course it affects their suppliers, including photoengravers. There are great possibilities for research for letterpress, based upon a demand by printers.

"Letterpress printers in the mass have not sought to improve their equipment, methods and practices, but have sought succor from outside sources. Many letterpress printers fearing the competition of rival processes, instead of looking for improvements in their own line, with which they are familiar, went into offset, a business about which they knew little.

"However, there is a revival of faith in letterpress, still the best way to put ink on paper for many purposes, although not the only way for all purposes. Printing plates today comprise the keystone in the arch of all printing processes. After plates of whatever character are perfected, if existing presses cannot use them to advantage, other presses can be designed.

"A great deal of research has been done in the Graphic Arts and the most revolutionary developments are in connection with photoengraving and hence with letterpress printing. The invention of

R&E Council Members Visit Kodak—Twenty-two members of the executive committee of the Research and Engineering Council of the Graphic Arts Industry, Inc. recently visited Eastman Kodak's Rochester, N. Y. plant to review developments in graphic technology. Viewing a set of progressive proofs are, left to right: Robert E. Rossell, managing director, R&E Council; Paul Lyle, executive vice president, Western Printing & Lithographing Co., Racine, Wis., and treasurer, R&E Council, and Kodak's Jack Groet.

electronic engraving machines and the application of electronics to other operations in photoengraving are far ahead of anything achieved in the competing fields. The substitution of electronics for optics and chemicals is truly revolutionary.

"Letterpress printing and its components are awake. To rejuvenate the industry, the awakening of letterpress printers, individually and collectively, and the builders of printing presses who have been following the path of least resistance too long for their own good, is called for.

"The future of letterpress rests upon the rotary press principle with relief plates to fit. The plates are ready now and waiting for the press. Makeready, generally considered the bane of letterpress printing, can be overcome by the production of plates containing the complete printing form, all produced on one plane. The day of the mixed form containing type and engravings and the differences in their height, calling for elaborate makeready, is waning. Phototypesetting and powderless etching will eventually be combined and will change the complexion and climate of letterpress printing."

French Researcher Visits RIT — Gerard Martin (left), director of research, Librarie Hachette, Paris, France, talks with John Petrycki, staff member, Graphic Arts Research Dept., Rochester Institute of Technology, during Martin's recent business trip to the United States and Canada. Librarie Hachette publishes two daily newspapers, a weekly and a monthly magazine, and operates a book printing and publishing company which produces pocket books and educational books.

Flint Makes Research Progress Report

At the recent Cincinnati convention, American Photoengravers Assoc., C. M. (Larry) Flint, consultant, Chas. T. Main, Inc., presented an extremely interesting comparative progress report. The report was presented for his company which has been retained by the association to investigate research in the printing industry. Flint's report dealt with the volume of printing produced by letterpress, offset and gravure. In addition to process volume and percentage of use in relation to processes, Flint also indicated rate of growth for each individual process.

Also, as a part of his company's report, Flint presented information regarding four possible research programs which are being studied.

In his report, Flint stated that the total value of books and pamphlets printed and bound for 1947 was $235 million and for 1954 it was $420 million, an increase in the period of 79%. Of these totals it is estimated that in 1947 approx. 12.35% were printed by offset, 55% by letterpress, and the balance of 33% unspecified, but principally letterpress. In 1954, approx. 17.4% were printed offset, 43.5% by letterpress. The balance of 39% is accounted for by 1.3% gravure and the rest unspecified but principally letterpress. These estimates indicate that while the value of books printed and bound for the period under study increased 79%, the value of books printed by offset increased 151% but they represent only 17.4% of the 1954 total, the speaker said.

For long run publications and for publications with close production schedules, the trend is toward high speed web fed letterpress or to sheet fed rotary letterpress printing.

For publications printed by general commercial printers, the trend is toward sheet fed offset, although offset does not yet represent a sizable portion of total publication printing by commercial printers. In 1947, publication by offset by commercial printers totaled $8,769,000 or 4.35% of total publications. In 1954, offset was responsible for $34,195,000 or 7.7%. During the period, offset increased by 290%, according to Flint.

During the same period, gravure printing of publications by commercial printers increased from $14,670,000 to $45,503,000, an increase of 210%. As with offset, gravure does not represent a sizable portion of the total. In 1947 it represented 7.2%

Speakers at R&E Council Seminar—The sub-committee on intaglio processes for the Research and Engineering Council held a seminar at Sheraton-Park hotel, Washington, D. C. on Dec. 2. Latest developments in resists for the gravure process were discussed. Standing (left to right) are: T. A. Pine, Springfield Gravure Corp.; Carl M. Noble, Electric Eye Equipment Co.; A. J. Powers, jr., Chemco Photoproducts Co., Inc. Seated (left to right): Armin von der Heydt, Alco Gravure, Div. Publications Corp.; Charles Taylor, Flexible Packaging Div., Continental Can Co., Inc.; William H. Vinton, E. I. du Pont de Nemours & Co., Inc., and the chairman, James M. Dugan, Battelle Memorial Institute.

RIT Quality Control Seminar—The statistical quality control seminar for the Graphic Arts industry held recently at Rochester Institute of Technology was attended by 23 full-time representatives of 22 companies. Donald Macauly, president of Paper and Printing Quality Control, Inc. and originator of the seminars, coordinated this year's curriculum with Warren L. Rhodes, director of RIT's Graphic Arts Research Dept. Shown discussing a class problem are James Fuller (left), Eastman Kodak Co.'s Printing Dept., and William McCoubrey, Lord Baltimore Press, Baltimore, Md.

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and in 1954 it represented 10.3%. The use of both offset and gravure in the publication field is growing at a rate greater than letterpress, but letterpress continues to grow at a lower rate.

Flint pursued the subject further. He said a study has been made of research programs now underway in this country and abroad. This study was made with the co-operation of the Research and Engineering Council. Of approx. 500 programs examined as a result of the survey, 22 research and development programs apply to the letterpress field, and 24 programs apply to the offset field, 34 programs were of a general nature which could apply to any of the printing processes. The greatest emphasis appears to be on equipment or product improvement, with nearly 200 programs of the 500 total pointed to this end result. Of the 22 research programs applicable to letterpress printing, we find eight applying to platemaking and two applying to makeready. This would indicate that inadequate research in the two most vital areas is presently under way.

Four possible programs are being studied:

(1) *Completely co-ordinated research program* to supply both fundamental research information to the application group, and the application laboratory to supply necessary information to the industry.

(2) *Co-operative research program* which depends extensively on industry and other research facilities to provide the fundamental information which will of itself determine only the application problems for the industry.

(3) *Application research laboratory* co-ordinated with educational facilities at the undergraduate level. With such a program, the educational activity would provide the industry with fundamental research at relatively no cost and in addition, it would supply the industry with technically trained personnel suited for administrative positions.

(4) *Application laboratory* co-ordinated with an educational program at the graduate level. Such a program would provide essentially the same as program No. 3, with the exception that the fundamental research would be of more value.

Lighting System Aids Study of Color

An illumination system that can produce startling changes in lighting effects enables visitors at the newly-opened Interchemical Color Center, New York, N. Y., to study their color problems under conditions similar to those related to their own businesses.

The lighting facilities are designed to provide six of the kinds of illumination under which color is most commonly appraised. Combined with an array of modern colorimetric instruments, this installation equips the Center with the tools to attack a wide range of commercial color problems.

The six kinds of illumination range in color temperature from simulated north sky light (8000 deg. K) to tungsten light (2800 deg. K), the normal incandescent illumination found in the home.

Between these extremes fall overcast north sky light (7400 deg. K), recommended by the Research and Engineering Council of the Graphics Arts for color matching; average daylight (6700 deg. K), approved by the Intl. Commission on Illumination for colorimetry; cool white fluorescent light (4500 deg. K), common in supermarkets and retail displays; and color transparency illumination (3800 deg. K), popular for judging 4-color proofs against original color transparencies.

The importance of light to color is based on a fundamental principle of physics. The color of a physical object, as seen by the human eye, is nothing more than the modification of light being reflected by that object. The color of any object changes as the nature of light changes.

The Color Center's lighting system supplies an illumination intensity on the counters and tables of over 100 foot-candles, which is the intensity recommended by the Research and Engineering Council as the optimum for making color judgements.

Using special lighting and a magnetic blackboard, Interchemical's Color Center Director F. L. Wurzburg, jr. (right), discusses color variations of a printer's proof with (from left) Robert Cleary, Alfred DiBernardo and Dudley Head of Interchemical Corporation and Maurice Welt of Crafton Graphic Co., Inc. Switchboard controlling Center's six-stage illumination system can be seen below blackboard.

Flexographers Want Ink Answers

First Annual and Technical Forum Meeting of the Flexographic Technical Assoc., to be held Feb. 5-6, 1959 at the Hotel Biltmore, New York, will concentrate on studying ink in three technical sessions, according to FTA preseident, Karl Weik, Cello-Foil Products. Theme of the meeting, *Find the Answers*, carries through on the central purpose of FTA to conduct technical and research programs for the betterment of the Flexographic printing industry.

Topics of the three technical sessions are *Ink Solvents, Their Purposes and Suitability; Automatic and Manual Controls for Ink Viscosity;* and *Producing Optimum End Results Through Proper Ink Distribution Systems.* It is hoped audience participation at these sessions will point out essential research.

Featured luncheon speaker on Thursday, Feb. 5, will be Raymond Blattenberger, public printer of the United States. Principal speaker on Feb. 6 will be Wayne Barlow, buyer of plastic display printing, Sears Roebuck & Co.

Futher information may be obtained from Julian Ross, at 220 W. 42nd St., New York 36, N. Y.

Vice President for Research—Dr. Carl E. Barnes has been elected vice president for research of Minnesota Mining & Manufacturing Co. Barnes will be responsible for all major research programs and policies while Lloyd A. Hatch, vice president for new product development, will continue to coordinate commercialization programs for new products coming from 3M laboratories. Also, Dr. John W. Copenhaver has been named director of central research, the post formerly held by Dr. Barnes.

Appointed Research Director — George S. McKnight has been appointed director of research for the Oxford Paper Co., it was announced by W. H. Chisholm, president of Oxford. McKnight succeeds Paul M. Schaffrath, who is resigning from Oxford to become mill manager for the Great Northern Paper Co.

Principals who will take an active part in the 1959 Great Lakes Mechanical Conf. are: Robert C. Nelson, production manager, Detroit *News*, Conference president; Don Clark, stereotype superintendent, Grand Rapids (Mich.) *Press*, Conference secretary-treasurer, and Everett B. Hall, pressroom superintendent, Detroit *News*, program chairman.

NELSON

CLARK

HALL

Informative Meetings Scheduled For Detroit Great Lakes Conference

Economics of composing room management, phototypesetting, packless mats and daily newspaper color will dominate discussions at the Great Lakes Newspaper Mechanical Conference. The conference will be held at Hotel Statler Hilton, Detroit, Jan. 18 to 20 inclusive. There will be 50 exhibit booths in which will be demonstrated the latest in newspaper equipment and supplies.

One of the most informative addresses will be delivered on *The Fallacy of False Economy in the Composing Room.*

Session for Small Papers

President Robert C. Nelson, production manager, Detroit *News*, assures production and mechanical executives attending the Non-metropolitan Meeting on Sunday afternoon, Jan. 18, that the subjects to be discussed will be related entirely to smaller daily newspaper manufacturing techniques. Chairmen of the meeting will be Stanley Amos, Lafayette (Ind.) *Journal* and *Courier*, and Ben Whitacre, Kokomo (Ind.) *Tribune.*

Concurrently with the Non-metropolitan Meeting will be held the Machinists' Session. Chairmen are Ted Gardiner, Indianapolis (Ind.) *Star* and *News*, and Ralph Elliott, Indianapolis *Times.*

The Pressroom Session on Monday morning, Jan. 19, will be presided over by Robert Knight, Indianapolis *Star* and *News*, and Robert Adams, Canton (O.) *Repository.*

It is anticipated that the Stereotype Session on Monday afternoon, Jan. 19, will be a provocative one due to experiences with the controversial subject of packless stereo mats. Presiding officers are John Signorelli, Detroit *Times* and Erwin Giannoni, Chicago *Tribune.*

On Tuesday morning, Jan. 20, at 9 o'clock, there will be two concurrent sessions—one each for the Mailroom and one for the Photoengravers. Chairmen for the mailers will be Edwin Koffke, Milwaukee (Wis.) *Journal*, and George Murray, Detroit *Free Press.* The Engraving Room Session will be presided over by Ernie Scherer, Detroit *News*, and John Dalton, Indianapolis *Star* and *News.*

On Tuesday afternoon, Jan. 20, a session at 1 o'clock will be devoted to composing room management and techniques. Charlie Buttermore, Cleveland *Plain Dealer* and *News*, and Warren Stremming, Des Moines (Ia.) *Register* and *Tribune*, will preside.

Secretary - Treasurer Don M. Clark, Grand Rapids (Mich.) *Press*, reports great interest in this year's conference and is anticipating a total attendance of over 900. The outstanding conference program features plus exhibits of technological improvements, will draw executives from all over the Great Lakes area, some from outside that area, as well as Canadian newspapermen.

Practical pointers on how to be safe when working around a printing press includes details on how to install a safety operating control on presses.

Planning for SAFETY in Your Plant's Pressroom

By ROY P. TYLER

Special Service Engineer, Harris-Seybold Co., Div. of Harris-Intertype Corp., Cleveland.

PLANNING for safety in the pressroom is not much different from planning for safety in a factory or machine shop. If there is a difference it's because generally pressrooms are safer to begin with, and many of the potential dangers existing in manufacturing plants are not prevalent.

Nevertheless, like practically all machinery having rotating components, printing equipment can be harmful to a careless or thoughtless person. This is due to the nature of the work it performs. It is necessary in a printing operation for material to pass in or through the processing area. You then have the problem of providing room for the material while not crowding the operator.

Why Accidents Happen

Printing equipment manufacturers recognize that safety devices make important selling features. In their engineering designs they endeavor to include the most advanced safety devices, guards and controls on equipment in such a manner that will not hinder production. Accidents happen when safety features are ignored, altered or not understood.

Guards and protective mesh provided on equipment are not installed to make the pressman's job more tiring or inconvenient, but solely for his protection. Such devices cost money and the cost is reflected in the price the press buyer pays. A cylinder guard stored in the corner of the pressroom is not only a sign of money going to waste, but also a warning of increased and unnecessary danger.

Alertness to the dangers that can be encountered in a pressroom will lead a good operator to be constantly aware of the electrical controls that govern operation of a press. Control manufacturers, as well as machinery builders, have devoted considerable study and research to increase the safety of their control devices. For instance, the National Safety Council and the Research and Engineering Council of the Graphic Arts have been working to standardize press controls for several years.

Install This Safety Control

One result of this continuing program is a new type of safety control developed jointly by Harris-Seybold Co., Div. of Harris-Intertype Corp., and Cutler-Hammer, Inc. Like many other safety devices, the new control was developed from an idea so simple that it had been overlooked previously. It requires the operator to push two buttons simultaneously with two fingers of the same hand, in order to cause continuous operation of the press. When either of the buttons is pushed singly, the machine will operate only as long as the button is depressed. The operator may therefore inch or jog the equipment when making adjustments without danger of its starting and continuing to run.

Although a patent application on the safety control has been filed, the idea has been offered by both firms to the Graphic Arts industry so that it may be manufactured and used without payment of royalty. Since the new control is primarily a matter of wiring, a diagram for this two-finger run circuit is illustrated here. It can be installed on existing equipment by a competent electrician.

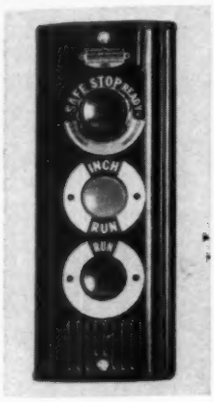
Working Around the Press

It is recommended that when push buttons are not in satisfactory working order, the operator should make a report so that they can receive prompt attention. When making adjustments to moving mechanisms on a press, always be sure that the safe button is on. If you must actually get into the machine (particularly if platform or guards have been removed), pull the master switch for the electrical supply to the press.

Hand-holds and railings are provided on presses where they have been found to be convenient for most operators. It is highly recommended that the operators get into the habit of using them while moving around the press, and not become accustomed to grasping a lever or arm that might sometime be moving or in a different location. Also, there is a tendency to lean against various parts of the machine while watching operations. If this is necessary, it is suggested that before you lean, make sure you will be clear of all moving parts.

When working around a press, personal wearing apparel is very important to personal safety. In general, all clothing should be clean and well fitted; shirts should be short-sleeved. Trousers should be cuffless and safety shoes are rec-

ommended. Jewelry, such as watches and rings should never be worn when working around a press. A ring or watch strap can be very easily caught on a moving part, and while jewelry can be replaced, fingers and arms cannot.



Master control station for use on printing presses and other machinery which provides two button run and one button inch arrangement. This control may be manufactured and used without payment of royalty. A wiring diagram for its installation on existing equipment is shown below.

As a general practice, carrying of wrenches, screw drivers and other tools in pockets should be discouraged. A tool in the pocket is liable to be protruding which could catch in the moving machinery. This can cause a man to reach involuntarily into the machine.

Since the pressman's job involves handling different kinds of chemicals, he should take precautions against any allergy reactions. Rubber gloves should be kept in a handy place and quickly slipped on when one has to use solvents, etches and other skin-irritating chemicals. It is good practice to keep containers identified and the outside of bottles, funnels and cans free of drippings or spilled material.

Banish Sudden Noise

Another point we should not overlook is the potential danger in loud and sudden noises. For instance, when handling skids, do not drop or throw them on the floor. This sudden noise can be so startling that someone working on a press will move involuntarily with the possibility of being caught in a moving part.

These are the differences between safe and dangerous practices. A man invests in his own safety by learning to do the job the correct way. The fact that the safest way is also usually the best way to do a job makes it doubly attractive to both employee and employer. The main requirements for being safety-minded are alertness and common sense.

Many printing plants have a rule that all personal injuries, no matter how small, should receive first aid. This is a fine precaution against infection or other aggravation of an injury, and should be universally adopted.

More than a few pressroom accidents have been traced to the practical joker, the good natured scuffle or just general fooling around. It is good common sense not to engage in such activities in a pressroom or other mechanical departments.

Be A Good Housekeeper

Good housekeeping is not only essential to safety, but should almost automatically bring higher quality and lower cost production in a plant. It may, however, be more difficult to sell an organization than good personal safety habits. The benefits are less tangible; it's harder to show how they pay off. But once a few key people have accepted and championed good housekeeping, it can be sold throughout the organization.

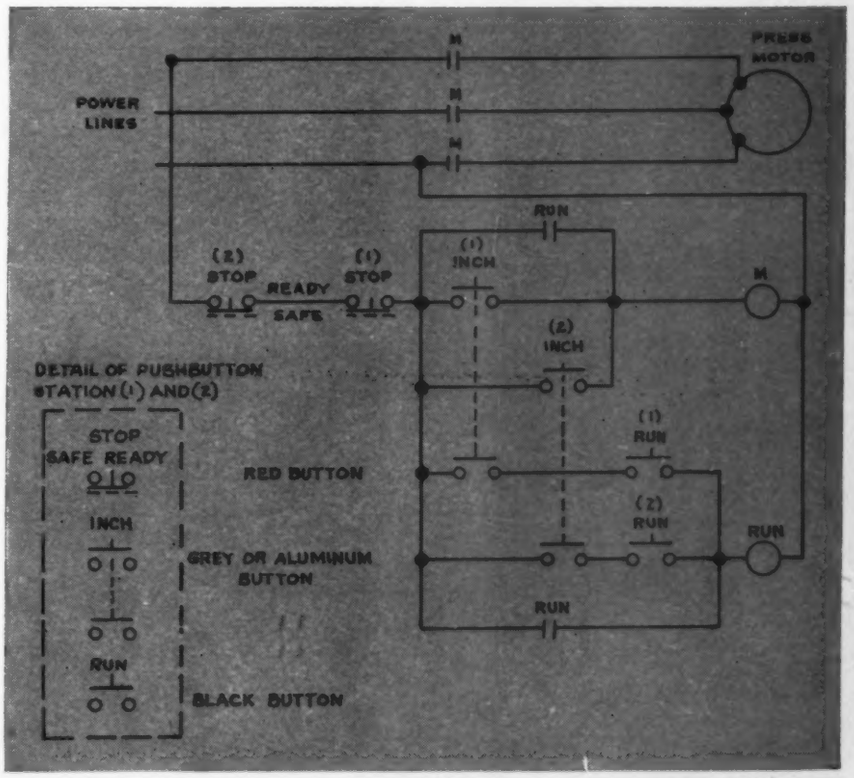
One plant problem which requires eternal vigilance is in keeping aisles clear of obstruction. Industrial engineers have proven that clear aisles of adequate width are essential to high productivity. Overcrowded pressrooms reduce their capacity to produce.

Here are other suggestions for good housekeeping in printing plants. In the pressroom, oil drip pans should be cleaned periodically. Oil, grease and water are hazards around moving machinery. The working area around a press, its platforms and steps should be kept clean and dry. One of the major causes of accidents in the pressroom is falling, and nothing encourages it more than slippery footing.

If skids of paper are opened near the press, it is recommended that the steel tie straps be cut cleanly and then removed completely from the pile. These straps are a potential source of cuts and scratches. They should be put into proper waste containers so that they will not project.

Clean tools are an asset. Oily or grimy wrenches, sponges or rags are harder to use, do a poorer job, and present danger to their user. The pressman who knows enough not to have strings or frayed edges

(*Continued on Page* 58)



Wiring diagram for installation of two-finger run safety control shown in illustration above. The control requires the operator to push two buttons simultaneously with two fingers in order to cause continuous operation of the press or machine on which it is installed.

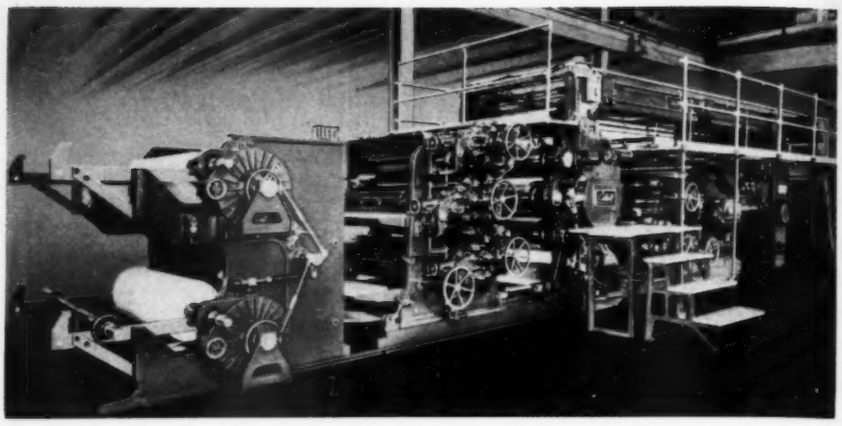
Pumps Stereo Metal Thru Pipe Lines

Transportation of molten stereotype metal from a central melting tank, through electrically-heated pipes to the casting pots is being done by means of systems installed at the New York *Times* and Los Angeles *Times-Mirror*.

One of the principal components of these systems is an electrically-heated pipe line which maintains the metal at 650 deg. F. while it is being pumped from the central tank to individual plate casting pots. The New York installation was made early last year; the Los Angeles one is to go into operation this month. Both systems were designed by Electric Pipe Line, Inc.

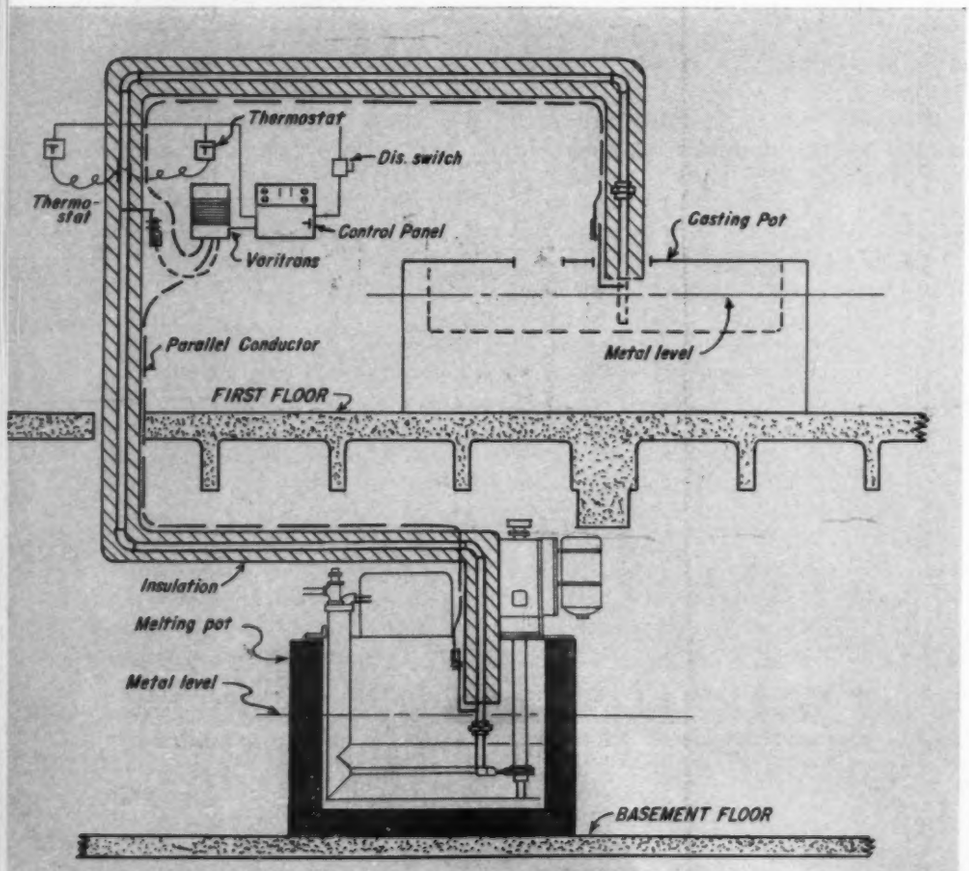
The installation at the New York *Times* required heating of 70 ft. of 1½ in. piping to a temperature of 650 deg. F. An 8 k.v.a. Varitrans is used to accomplish this. A main control panel with ammeter, pilot lights and interlocking relays controls the Varitrans output at predetermined temperature settings. Designers of the system claim it is possible to start pumping metal through the piping within 90 min. from a cold start.

The pipe line system works on the principle of impedance heating by impressing a low voltage current through the piping using the pipe itself as the heater as well as the conveyor of the metal. Low wattage input—100-120 w. per ft. of pipe—is used. This is said to be an important factor in plants which are air conditioned.



Cottrell Press with Web Feed Device—This Cottrell 40 in. by 59 in. five color letterpress, equipped with a Cottrell web feed device, was recently purchased by International Playing Card and Label Co., Rogersville, Tenn. The press, which feeds from a roll but prints on sheets, is furnished with a double unwind roll stand for uninterrupted loading. Cottrell, Sub. Harris-Intertype Corp., has built both single and double roll stand web feed devices for use with sheet-fed rotaries. The company is currently studying possible use of the web feed device with sheet-fed offset presses.

Typical system for pumping molten stereotype metal from a central melting tank located on one floor, through electrically-heated pipes to casting pots located on another floor. Similar systems, both designed by Electric Pipe Line, Inc., have been installed at the New York *Times* and Los Angeles *Times-Mirror*.



The system at the Los Angeles *Times-Mirror* services three 10 T. casting pots. Reservoir for feeding each pot is a 70 T. capacity melting tank which is located in the basement and fed automatically by conveyor. Feeder lines consist of 175 ft. of electrically-heated seamless steel pipe line. Three heavy duty electric pumps are used for pumping the molten metal from tank to casting pots. A standby pump is provided for emergencies.

An electric control panel located in the stereotype department will keep track of the system operation. Special features include pipe heater indicator lights that will detect any faulty operation which might allow a pipe to freeze up.

The central reservoir will hold enough molten metal to provide two complete plate changes for a 96 unit pressroom. The *Times-Mirror* pressroom presently has 80 press units.

Additional information on the electric pipe line systems may be obtained by circling No. 263 on Reader Service Card.

Bindery Advice to Printers

More than 2000 printers and lithographers who farm out work to trade binderies have received copies of a booklet published by the Trade Binders Section, Printing Industries Assoc. of Los Angeles, called *The Tie that Binds*. Designed to help members of the Graphic Arts Industry better plan their bindery production, the booklet is one of a series of six to be published.

Fairchild's Hyatt Reviews

SCANNERS

. . . Electronic color separation mechanisms are now near close of research or are in manufacturing stage.

PROGRESS during the past two years in development of color scanners was reviewed before the October convention of the American Photoengravers Assoc. by J. A. V. Hyatt. Hyatt is vice president and general manager of Fairchild Graphic Equipment. His company is highly interested in developing electronic color printing plate equipment and last summer acquired the assets of Acme-Teletronix with which was included the Acme color separator.

Hyatt commented: "A business organization must be competitive to be profitable. This is a basic rule of survival. Printing is meeting competition from more sources than ever before. Electronically spawned means of communication, such as radio and television, are competing with the printing processes for the communications jobs that once were done primarily by the printed page."

The speaker related the experience of a platemaking company which has had a color scanner in operation since June 1958. Its operator is a young black-and-white camera man who had less than three weeks special training at the plant where the scanner was made. The combination of this operator, the color scanner and powderless etching is consistently turning out on a schedule of 60 min. a set of corrected continuous tone separations, with an average of 2 hrs. for etching and finishing a complete set of process color plates. This schedule is routine.

Hyatt then presented a detailed description of the equipment used and the scanning operation. He also described fundamental controls which are designed into most of the computer portions of most color scanners. They provide: (1) Control for the printing strength of each reproduction primary within the interpretive judgment of the operator; (2) Compression of color saturation and color brightness; (3) Compensation for color impurities and brightness limitations of the process inks; (4) Correction for the color unbalance of filters and lights in relation to the process inks, and (5) Selection of undercolor removal and computation for the black printer.

Next came an exposition of the specific pieces of this equipment.

TIME-LIFE SCANNER—"Since it was the first commercial machine," said Hyatt, "let us discuss the Time-Life scanner. The principal news about this equipment since 1956 is that there are more of them and they are in wider use than ever before. In addition to the three installations in the United States; Stamford, Conn.; Chicago and San Francisco, Calif., machines are now in operation in Europe. Service bureaus have been put into operation in Holland and France, and within another month or six weeks a machine will also be in operation in England. Printing Developments, Inc., a subsidiary of Time, Inc., which manages the color scanner, reports the production of these European machines has already been sold out for a period of two to three years with 19 of Europe's leading printers and platemakers.

HELL SCANNERS—"From Germany comes information that Doctor Rudolf Hell is making available a variety of color scanners. In 1956 we described the first color machine. It uses a flat scan and flat recording design. It scans reflection color copy only and its product is a letterpress plate in either three or four colors, produced one at a time. Since 1956, Dr. Hell has added the ability to calculate a black printer. An alternate model of this machine has been developed which accepts transparent originals. Both of these machines have a maximum plate size of 6 in. by 8 in.

"A third color machine designated the Vario-Klischograph is now being advertised for delivery in 1959. This machine is designed to produce color corrected letterpress plates directly from either reflection copy or transparencies. The ability to change size is also provided in this equipment, enlarging four times or reducing to three times. Maximum engraving sizes for this machine are 12¼ in. by 17 in. Both plastic and various types of metals can be used in this machine.

"The Hell Colorgraph, a third machine, accepts photographically prepared uncorrected separation negatives; it flat scans these uncorrected negatives and from information produced from each of these, the computer provides information for making color corrected negatives. In this Colorgraph machine, the original uncorrected negatives can be any size up to 11¼ in. by 14¼ in.

"Approx. 100 min. are required to produce the maximum size separations from this equipment. While no Colorgraph has been as yet placed in commercial operation, a number of examples of its work have been produced in various publications, both in Europe and in England.

CROSFIELD SCANATRON — "The name Scanatron has been applied by the firm of J. F. Crosfield Limited in London, England, to a machine it has under design and manufacture. The scanning system of this equipment is unique in that it uses electronic scanning by means of a cathode ray tube instead of the optical type of scanning we have described. The scanner is designed to produce continuous tone positives up to a maximum size of 12 in. by 16 in. on glass plates or

film. It will take about ten minutes to scan a full size plate or 40 minutes for a set of the four separations.

ENGLISH HUNTER-PENROSE—"The English Hunter-Penrose equipment was explained and outlined in our 1956 discussion. Since then, this equipment has reached the production stage. This scanner works from reflection copy only and it produces a set of three or four-color corrected separation negatives, one at a time. This machine is quite radically different from most of the other scanners in that it is essentially a large copy camera. Instead of illuminating the copy generally, as with arc lights, it illuminates the copy by a point source of light which scans up and down in a typical scanning motion.

MIEHLE SCANNING TECHNIQUE—"In our 1956 discussion of the research work done at the Miehle Printing Press & Mfg. Co., it will be recalled that this equipment used a refracting prism for separating the color spectrum into its various components instead of filters to color separate. Since 1956, the investigation of this approach to the scanning technique has continued. The personnel at Miehle report that the progress so far has been most encouraging. As yet, their work has not reached the stage where they have a fully assembled piece of equipment.

"As presently conceived, the machine is intended to operate automatically with no requirement for the operator to adjust the machine for each individual piece of copy. Using printing inks, the primary

and secondary colors will be printed on a sample of paper and the machine will scan these colors. In this way, it is expected that the machine will automatically adjust itself to scan a particular piece of copy.

BELIN SCANNER—"Another color scanner which was described in 1956 is the Belin scanner, designed and produced by Eduard Belin of France. This machine will scan opaque copy or transparencies. In the case of opaque copy, it will scan originals up to 24 in. by 30 in. Transparencies, however, are limited to 8 in. by 10 in. The product of the Belin machine is a set of continuous tone negatives or positives.

FAIRCHILD SCANNERS—"The program in our own organization has progressed materially in the last two years. About 10 months ago, we reached the stage where we had sufficient confidence in the design of the basic components that we approved the construction of prototype equipment. The first of these machines was assembled late last Spring and has been in evaluation stages since. A second machine was completed two months ago (Aug. 1958) and is now reaching the stage of evaluation. The separations produced on these first two machines are the same size as the original copy. These scanners are designed to rotary scan original color transparencies or opaque copy. Using the rotary recording principle, they produce a set of three or four continuous tone color separated negatives or positives in one scanning operation.

"A third Fairchild machine not yet completely assembled, is the machine by which we will be able to enlarge or reduce original transparencies directly to screened positives or negatives. This machine will give choices of a number of screens ranging from 65 to 120 lines, or if it is desired, will produce continuous tone films. It is our feeling that a major advantage will be achieved by having a machine on which it is practical to go directly from the original transparency to a screened negative or positive.

ACME COLOR SEPARATOR — "Earlier in this presentation, we told of a scanner-fast etch combination where process color plates are being made in a total time of three hours by one of your members. This scanner is an Acme Color Separator designed and built by Acme-Telectronix of Cleveland. This is the second of these machines to be made and is installed at the Niagara Photoengraving Co., in Buffalo, N. Y., an affiliate of the Buffalo *Courier-News*. The original color separator has been in daily use at NEA for three years. NEA prepares plates and mats from its separations for its subscribers and right now is using this equipment to render a separation service to engravers, so also is the Niagara Photoengraving Co.

"A few months ago the assets of Acme-Telectronix were purchased by Fairchild. The color separator is one of a number of products we obtained by this acquisition. Typical examples of the work produced by these machines can be seen at the Fairchild booth.

"This is a look at electronics in color photoengraving. Much of what was research and experimental is now nearing or is in the process of manufacture. This equipment right now is producing quality results at a great saving in time and money."

What's Ahead for the Reader: **Watch the February issue of *Printing Production* for a story on how a commercial printing plant established a cost finding system for its production departments. How they went about it; benefits of the systems; how it is maintained—will be explained. If you are concerned with high cost centers in your plant, read this important feature.**

Editors of *Printing Production* will be on the scene of the Great Lakes Newspaper Mechanical Conference in Detroit to report stories of interest to the newspaper field. If you are unable to attend, read the report of this significant regional conference in the February issue.

The March issue will be devoted to Plant Planning and Improvement and will again carry the popular section on what many commercial and newspaper plants have done in building new quarters or expanding present facilities. Other interesting features following the planning theme will also be included.

This is the fourth and last part of the series on handling paper in the pressroom. Wehmhoff discusses requirements for paper conditioning and how to handle problems.

In the pressroom, how's

PAPER BEHAVIOR?

Conditioning and handling suggestions

By BYRON L. WEHMHOFF

PAPERS are sometimes reported to be too hard and not sufficiently ink receptive. A common pressroom remedy is the addition of kerosene, light mineral oil, or light litho varnish, depending on the kind of ink. The theory behind this is that the thinner ink will soak into the sheet but actually thinning makes the ink much less tacky. As a result, the paper does not take enough ink off the plate, and what little is taken off soaks into the paper, resulting in a weak print.

The logical remedy is to make the ink tackier, so more of it will stick to the paper at the instant of impression. This may be done preferably by mixing with the ink a heavier and tackier ink of the same general characteristics, or by the addition of a small amount of heavy bodied litho varnish.

Offsetting is more in evidence with ink resistant papers than with ink receptive papers. Making the ink tackier will accentuate the tendency toward offset, and this must be considered. Non-offset sprays may be used on sheet feed presses, but on web presses not using heat-set inks, care must be taken to prevent offset. Non-offset materials cannot be used with any success between the first and second impressions on the press, as the printing pressure more than overcomes the effect of the offset preventing material.

Ink resistant papers are not particularly suitable for use on web presses when oil-base inks are employed. Even with heat-set inks, a high surface ink receptivity is desirable to insure the paper taking a sufficient amount of ink off the plates and trap properly with succeeding inks in multi-color work. The body of the paper need not be highly absorbent in printing ink. In fact, the paper is better when the body is more ink-resistant than for oil base inks. The higher the press speed, the more ink receptivity is needed in the surface of the paper. If the surface is too ink resistant, it will not take enough ink off the plates. If the body is too ink resistant, it will not provide the absorbency necessary to temporarily take care of that part of the solvent driven out of the ink and into the paper by the heat used in the drying system.

Mechanical Requirements For Printing Papers

Mechanical requirements for paper vary somewhat with the different processes and kinds of equipment. However, the following covers the main requirements for the major processes.

(1) *Uniformly Wound Rolls,* neither too hard nor too tight, free from buckles, ridges, soft and/or hard spots. A web of paper that is made uniform and level all the way across can be wound into such a roll. Excessive tension on the rewinder and also oscillation of the reel of paper being rewound can cover up these defects to some extent. But such rolls are very hard and the defects will show up immediately as the roll unwinds on the press. Rewinding will not correct or eliminate defects that occurred in previous operations.

(2) *Splices* as few as possible properly flagged on both ends and to have no overhang on the edge entering the press first with not more than three splices in a 36 in. diam. roll. Narrow, flexible splices not over 1 in. wide are preferable. If heat-set inks are used, the splices must be heat resistant enough to withstand the effect of the heaters in the press. Obviously the splices must be continuous in adhesion all the way across the roll.

(3) *Rolls* must be free from loose scraps of paper, slime spots, hair cuts, turnovers, lint, slitter dust, etc.

(4) *Tensile Strength.* Except under very unusual conditions, a paper that is strong enough to go through the papermaking and finishing processes without breaking is amply strong for the press. It has been found that the tension on a rewinder is about 10 times the maximum tension on a press.

(5) *Ends of Rolls* should be clean, free from slitter fuzz, nicks, and offsets.

Letterpress Sheet Feed Presses

(1) Paper must be trimmed square, lie flat and be free from cockles, wavy edges or tight edges.

(2) Torn and short sheets, slitter or cutter dust and loose foreign materials must not be present.

(3) Paper should show a minimum of dimensional change with changes in relative humidity.

(4) If possible, paper (especially that for use in color work printing) should be conditioned to be in balance with the pressroom atmosphere, provided the pressroom is conditioned. Pre-conditioned paper is not recommended for unconditioned pressrooms, particularly in winter months.

Conditioning Paper

Conditioning sheet paper to match pressroom atmosphere conditions helps to eliminate mis-register, as well as feeder and delivery troubles. Conditioned paper in an unconditioned pressroom usually causes more trouble than if the paper had not been preconditioned.

In winter months, as a rule, paper contains more moisture than is necessary to match the average unconditioned pressroom atmosphere. As a result, it dries out around the edges, developing tight edges and leaving a fullness in the center of the sheets. When such paper goes through the press, the fullness runs into wrinkles at the back edge, or back corners of the sheet, or causes slurs.

Tight edges can be corrected to some extent by dampening the outside of the pile and allowing time for the moisture to work into the sheets. In bad cases, a better method is to hang wet cloths around the pile overnight.

While these methods will usually eliminate the tight edges sufficiently to permit the paper being printed once, they will not help the mis-register that will occur if the paper is put through a second time, as is done in many multi-color jobs. This mis-register is due to shrinkage of the sheet caused by the moisture evaporating from the surface while going through the press.

An opposite condition is wavy edges. These develop when paper is exposed to an atmosphere having a much higher moisture content, or relative humidity, than that of the paper. This occurs in hot, humid weather. While it is not a paper defect, unless the paper was made with an abnormally low moisture content, it results in wrinkles, mis-register and feeder trouble. Keeping the loads of paper wrapped with waterproof covering until ready for the press and protecting, as much as possible, between the printing of the first and second sides helps cut down the trouble.

The wavy edges can be pulled out to some extent in the pressroom by the use of heat directed on the wavy areas. Some plants employ batteries of infra-red lamps for this work. Even blow torches, used judiciously, have been used successfully although this practice is not recommended.

One form of wavy edges, that is a paper defect, occurs as cockled paper, often even when the relative humidity of the paper and the pressroom are in balance. Such paper is seldom usable, particularly for multi-color work.

Offset Sheet Feed Presses

The requirements are the same as for letterpress sheet feed presses, with the addition of the following:

(1) The paper should be sized sufficiently to keep water absorption from the blanket at the minimum. Otherwise distortion will occur.

(2) The paper should be free from surface fuzz and lint. This is also desirable in letterpress work, but is essential in offset, as all such material collects on the plate or blanket and spoils the printed sheet.

(3) Paper should be as nearly neutral as possible to avoid pos-

(*Continued on Page* 81)

Day-Glo Used on Run-of-Book Basis

The *OAPA Pilot*, an aviation magazine, became the first magazine to use Switzer Brother's Day-Glo lithographic ink on a run-of-the-book basis in both editorial and advertising pages in its October 1958, issue. The ink was used to illustrate Day-Glo aircraft markings in a seven page feature article. It was also used on two advertisements in that issue. Printing was done at Darby Printing Co., Washington, D. C.

William Geib, a Switzer chemist, was assigned to the project. During a testing period the ink tended to pile up on the blanket. Geib and Darby's lithographic superintendent, Thomas Mitchell, found the answer in using medium coarse-grained, deep-etch zinc plates which permitted a smoother, heavier deposit of ink. The fluorescent ink was applied in two impressions.

Printing was done on a two-color Harris offset press, two up, eight page signatures. Sheet size was 34½ in. by 46¾ in., with 50 lb. Consolidated coated Consolith stock. Drying time between runs was three to four hours, according to Mitchell.

No additive of any kind was used. No special cleaning of the press was necessary, only a normal wash-up for light color. One thing that required watching, according to Mitchell, was the excessively tight register over a light and flimsy paper with two passes through the press.

The production team responsible for the first use of Day-Glo litho ink on a run-of-the-book basis in a magazine. Left to right are: Hyman Speigel, art director of the *Pilot* magazine; Jerome A. Newman, the magazine's production manager; Thomas Mitchell, litho superintendent, Darby Printing Co., Washington, D. C., where magazine is printed; and William D. Geib, chemist, Switzer Brothers, Inc.

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Advice on Litho Dampening

One of the problems of running an offset press is the control of the dampening system, according to a recent bulletin to members issued by the Lithographic Div., New York Employing Printers Assoc. If water were not one of the necessary evils of lithography, offset presses would be a lot easier to run.

Since these systems were invented, hundreds of men have attempted to improve them. Still the system is basically the same as it was on the first lithographic press. The fact that thousands of pressmen have learned to master this system proves that it is a matter of skill. Don't blame all your troubles on the dampening system. It works for others and it will work for you if you operate it correctly.

Since its inception, this system has employed softly woven cotton covers on the form dampeners and on the ductor. A soft undercover was used for greater resiliency. The cotton covers were usually a molleton or toweling type of cloth and were quite thick when new.

We know now that the thinking along the line of thick soft covers was wrong. The loose fibers were often pulled out by the ink on the plate. The material was not sufficiently matted to retain moisture at the surface of each fiber. They became dirty very quickly and had to be pressed too tightly to the plate for good operation.

Paper Covers are Better

Hard paper covers do a better job because there are no loose fibers to dry out and get dirty. A soft sponge rubber base affords all the resiliency needed. Such rollers are so true that they make perfect contact with the very lightest setting. Also, they are easily recovered.

Anyone having trouble with paper-covered dampeners should try setting them lighter. When running in contact with the plate there should be no indication of a bump after the gap. A dampening system should, of course, be kept mechanically perfect at all times, particularly the driving gears and the roller spindles and bearings. Roller bodies must be true to diameter throughout and perfectly concentric. Every friction surface must be kept lubricated.

On older presses, the dampening vibrator, the pan and the pan roller were of brass. This was intended to prevent rust. Actually brass is more grease receptive than it is water receptive. These items should be of stainless steel, aluminum or chrome plated. It will then be easier to keep them free of grease.

Cleanliness is Essential

Absolute cleanliness is essential to good dampening. The pan roller and the vibrator may look clean and still not take water. These rollers will seldom carry an unbroken film of water after standing dry overnight. They should be gone over with a wad of cotton soaked in full strength fountain acid mixed with gum, or a plate etch. Clean them thoroughly until they will carry a film of water that does not break away.

The solution in the pan should be kept clean and at a constant level. Using a small amount of antibiotic in the water will prevent the growth of bacteria in the pan and hose connections. Using a water leveling device will maintain a constant level and relieve the pressman of constantly checking the fountain. The correct use of good water stops can do much to maintain better water control.

Above all, do not use too much water on the plate or too much acid and gum in the solution. Also, always set dampeners as lightly to the plate as possible.

Bindery Speed Limits Can Easily Be Stepped Up

By **FRED P. HOFFERTH**, *Vice President and Production Manager, American Book Co., Cincinnati, O.**

WE make no secret of the fact that we expect our machines to run at the best speed possible consistent with the job on the machine at the time.

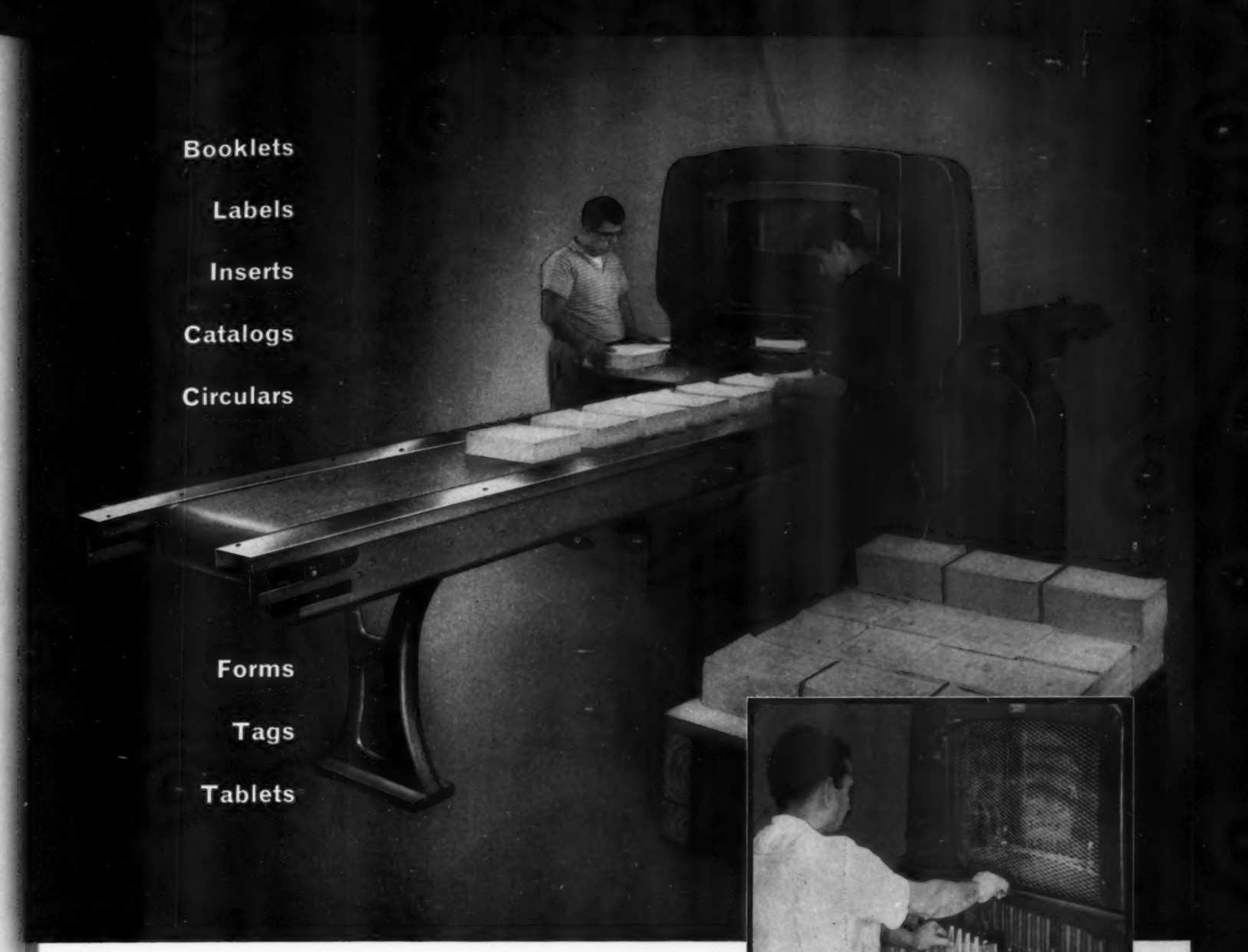
We have been relocating the speed controls of gathering machines, folding machines, casing-in machines, etc., for the past year to put them where the operator can get to them readily. Some of our controls were in the most outlandish places. The folder speed controls were under the folders. If the operator had a job on his machine that could run another 100 or 200 sheets per hour faster, he had to come down from his regular operator's position, crawl under the folder to the rheostat, inch it up slightly and then return to his regular position.

If I were the operator, I'm certain my incentive would not be to go to all that trouble for a few extra signatures. I didn't feel that I could expect the operators to do this either. We moved the speed controls by wiring, by gears or by any method, so the operator can control the speed easily from his regular operating position.

Our new Sheridan gathering machine was installed with the speed controls on the opposite side of the machine from the operator's position. I've seen him crawl over the machine to slow it down when he was having trouble. I wouldn't do the same thing to speed it up a few books per hour. Why should he? So we ran a shaft and gear from the speed control to the operator's position. Now we expect him to consistently change speeds of the machine to get the best possible production consistent with the job on the machine.

We are also installing tachom-

*From an address delivered at Printing Industry of America's Fourth Production Conference held at Edgewater Beach Hotel, Chicago, Dec. 4-5, 1958. The story of the conference appears on P. 32.



Trim them all, up to

3 Times Faster

DEXTER BRACKETT TRIMMER

The fast, accurate, versatile Brackett Trimmer features selective hydraulic clamping, two-hand safety operation and simplified knife changing.

Nothing trims or cuts as wide a range of work so fast...or so economically! In-line production, mechanical spacing and rugged construction are just some of the reasons why.

Dexter's Brackett Trimmer is up to 3 times faster than conventional cutters or trimmers. Production moves smoothly and accurately right through the Brackett. The built-in 9½ foot conveyor belt enables you to bundle, pack and ship right from the machine.

Easy-to-set cutting signals on the spacer shaft combine with the powered sliding gauge to position the work with precision register. Spacer shafts are removable...can be filed away with signals in place to save time on repeat jobs.

WRITE FOR FULL DETAILS TODAY

THE **DEXTER** COMPANY

A DIVISION OF MIEHLE·GOSS·DEXTER, INC.

Chicago 8, Illinois

For More Information Circle 49 on Reader Service Card

eters on all our key machines. We don't expect an operator to keep a stop watch on his machine, but we do expect him to watch the tachometer. We have located them at the operator's position close to the speed controls.

One must consantly check, double check and recheck on production results. There must be a continued interest by the operators, foremen, superintendents and top management if top production standards are to be maintained. We have production boards in all our key departments showing the output by machine by shifts for each day of the current month and the average daily production by month per machine per shift for the past year. Our foremen watch these charts daily and show an interest in them.

We have never hesitated about telling any employee or any group of employees that we are in business to make a profit so we can stay in business to protect his job. When they do an exceptionally good job they know they are not working themselves out of a job; they are just making it more secure.

We installed two 56 in. two-color flatbed presses in 1951. Their rated speeds were 2250 sheets per hour. We intended to run them, on the majority of our work, at that speed. Finally with the bugs out of the presses, our people properly trained and a host of problems solved, we could almost guarantee that if you walked into the room, the odds would have been strongly in favor of you finding the presses running at that top rated figure.

Only occasionally did we find it necessary to slow it down. Even then, when the special job was off, we invariably went back to the top speed. Our average net sheets per hour on these presses for a month's time and over three shifts was from 1900 to 2050 sheets per hour. Make-ready time was not included in these figures. It is, of course, deducted. However, the time does include loading up, oiling, etc.

Recently I got out the monthly averages over the past years for these presses and you could almost tell when it all happened. Our production is down about 100 to 125 sheets per hour from where it was and where it should be. That is approx. 6% less on about $150,000 machine cost, plus direct labor, etc.

We've had a meeting with our pressroom personnel since we've reviewed these figures and we hope we can get this production back where it belongs. It was a good lesson to us that you can't relax in production. You must stay on top of it if you ever hope to accomplish your goal or standards.

compact...safe
STAR V-BELT
MOTOR DRIVE

This compact, efficient motor drive is located out of the way, where feet cannot come in contact with moving pulleys. It packs extra transmission power, too, because there is greater belt contact with the drive shaft pulley. The new Star V Belt Motor Drive fits any model Linotype or Intertype and is easily installed.

If you are changing voltage or are troubled, now, with a faltering motor drive, investigate this Star unit today. Don't wait for trouble to strike!

ONLY **STAR** COMBINES THESE FEATURES:

- By giving more V-Belt surface contact, a sealed ball-bearing idler pulley provides greater transmission power.
- A variable speed pulley can be locked at any speed.
- The same endless V-Belts used for all speeds.
- Oil impregnated bearings used in the intermediate pulleys require no lubrication.
- Special adjustable leg supports motor. Provides silent, vibration-free operation; prolongs life of belt and motor.
- A premium-type motor with capacitor is standard equipment. Quickly and economically replaced when necessary.

● **Send for this new brochure.** Gives full information, shows how Star V-Belt Drive fits all Linotypes and Intertypes.

STAR PARTS, Inc.
SOUTH HACKENSACK, N. J.

BRANCH: 1227 BROADWAY, KANSAS CITY, MO. AGENCIES: CHICAGO • MINNEAPOLIS • LOS ANGELES • DENVER • 60 ACTON, MASS. • CANADA: PRINTING MATERIAL LTD. AND AGENTS OVERSEAS

For More Information Circle 168 on Reader Service Card

Cornelius Elected—George H. Cornelius, jr. (left), vice president of Cornelius Printing Co., Indianapolis, and newly-elected president of Printing Industry of Indiana Inc., presents a gavel to Gilbert R. Hendrin, president of Hendrin Printing Co. and retiring president of the association. Cornelius is also president of the Research and Engineering Council.

TIMES RECORDER-SIGNAL BUILDING AND NEW ANNEX, HOUSING PRESSROOM AND REELROOM.

During 1958, a large addition was built to house the first of Scott's "new look" presses completely equipped for four color newspaper reproduction. An outstanding feature of the new addition to the building is the Mosaic tile mural which adorns the front and depicts various phases of newspaper production.

"NEW LOOK" COLOR ADAPTABLE PRESS... by SCOTT

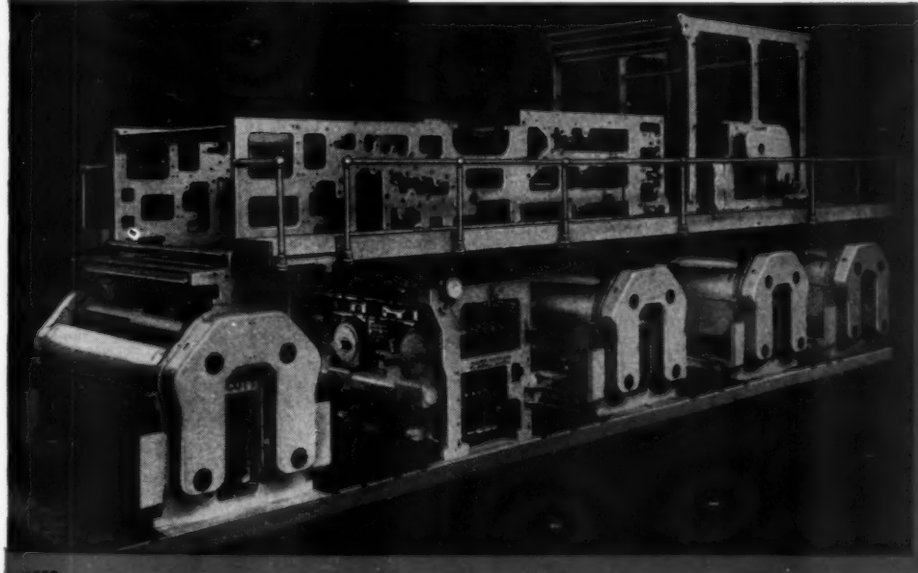
for ZANESVILLE, OHIO TIMES RECORDER -SIGNAL

Ohio's ninth largest market is being introduced to the product of a new Scott newspaper color press by The Times Recorder (morning), The Zanesville Signal (evening), and the Sunday Times Signal, all products of The Zanesville Publishing Company.

The papers' 35,000 circulation covers five counties and parts of five others in southeastern Ohio and brings the buying public from all over the area to Zanesville, 1957 All-America City award winner, 18th in population but Ohio's ninth busiest market place, outranked only by the state's largest metropolitan centers.

WALTER SCOTT & CO. | EXECUTIVE & SALES OFFICE: 501 FIFTH AVE., NEW YORK 17

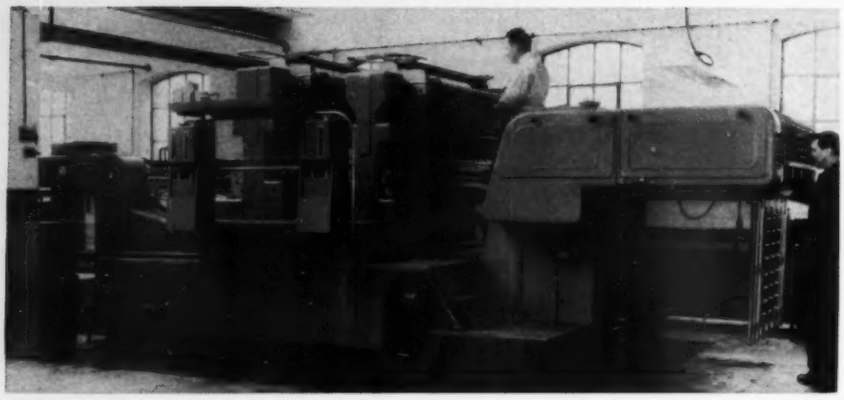
DIVISION OF WOOD NEWSPAPER MACHINERY CORPORATION Plant: Plainfield, N. J.



NEW, STREAMLINED SCOTT 4-UNIT PRESS, WITH FULL PROVISION FOR MULTI-COLOR SPOT AND ROP PRINTING

- One double, two single reverse drives
- "Skip Slitter" for tabloid production
- Motor-driven compensator rolls
- Single and double portable ink fountain
- Color couple with floor level ink control
- 3-2 folder with automatic "Kick-out" to eliminate paper chokes
- Aluminum guards for reduced weight and added strength

For More Information Circle 156 on Reader Service Card



The Chief 250 is one of three new two-color offset presses announced by American Type Founders Co. Maximum sheet sizes for the presses are 25½ in. by 38 in., 36¼ in. by 50 in., and 38 in. by 55 in.

New ATF 2-Color Offset Press Line

A new sheet register system and a V-arrangement of cylinders are among the features cited by American Type Founders Co. for its newly-introduced line of two-color offset presses.

The Chief 238, states ATF, will take a maximum sheet of 25½ in. by 38 in. at speeds up to 7500 sheets per hour. Maximum sheet size for the Chief 250 is 36¼ in. by 50 in., with speed up to 6500 an hour. The Chief 255 takes a 38 in. by 55 in. sheet up to 6000 an hour.

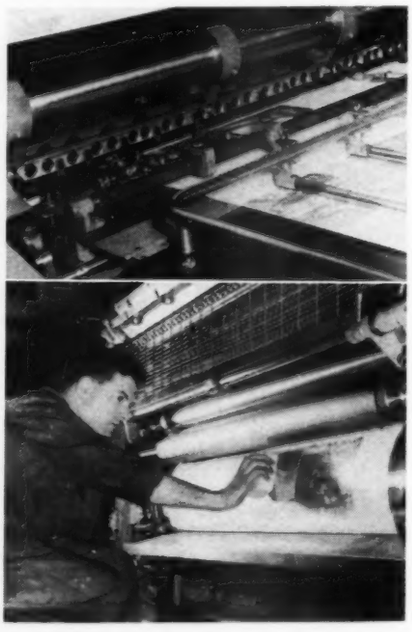
Presses in the new two-color line are constructed with cylinders in a V-formation. This is said to make the press more compact yet fully accessible. A single set of grippers on one impression cylinder is designed to eliminate register errors.

The register system permits a sheet to be registered while overlayed, allowing twice the customary register time. Head-stops can be adjusted while the press is running to vary the gripper margin or correct the lay of the sheet for register as required. Sheet slow-down allows the sheet to arrive at the main head-stops at a reduced speed, so that it does not buckle or bruise. When guides are adjusted, the check fingers are kept automatically in the same relationship so that no individual attention is necessary.

A handwheel adjusts the height of the feed plate for variation in stock thickness. Gripper heights need not be adjusted. Slight alterations of blanket-to-plate pressures are possible by means of a micro-dial for adjusting printing pressures. The adjustment of printing pressure by means of a handwheel and a calibrated setting dial is conveniently situated on the feed side of the press.

The delivery unit is designed on the cantilever principle, states ATF, for quiet running at high speeds with no twist and side strain. A new type of delivery take-off mechanism, providing for accurate piling at high speeds, is standard equipment on two of the presses.

Automatic ink wash-up, and automatic lubrication are standard features. As an optional feature both feeder and delivery can be equipped for continuous running during pile changeover. Circle No. 272 on Reader Service Card.



Features of ATF's new two-color offset presses. At top is register system which increases register time and allows sheet to be registered while over-layed. Bottom view shows V-arrangement of cylinders, said to improve accessibility for operator.

Plus 0.001 in. or Minus 0.0005 in. Fixed for Type High Tolerance

According to a recent issue of *The Typographer*, the Research and Engineering Council's Task Force on Type High of the Composition Committee, recently polled committee members on acceptance and recommendation for approval of standards for height of type and other relief surfaces for letterpress printing. Based on the accepted standard of 0.918 in., the committee has recommended permissible tolerances of plus 0.001 in. and minus 0.0005 in. from type high.

Establishment of standards follows an earlier survey of industry type high tolerances and maintenance practices. (See report in July issue of PRINTING PRODUCTION.) The Council has emphasized that the standards are intended to foster usage and eventual acceptance in practice of the permissible tolerances, even though they have no enforceability or implied warranty on the producer of type or typesetting.

The committee is working on a set of recommended composing room practices for maintenance of type high standards.

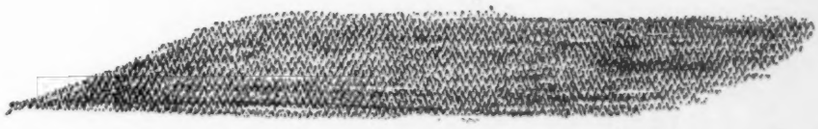
Correspondence Course and Career Movie on Printing

A correspondence school course for the printing industry is available. Announcement was made by the Education Council of the Graphic Arts Industry. Apprentices and on-the-job trainees may enroll in the course which is offered by the Danville Technical Institute, Danville, Va. Inquiries may be addressed to Lawrence A. Hill, principal.

A proposed new career movie stressing opportunities for young people in printing management is another project of the Education Council. This movie will be addressed primarily to college students and high school graduates planning to go to college. Chairman of the committee is Irl Korsen of Eureka Press, Los Angeles. The film is expected to be available within the year.

Mat Pak gets editions on the street—fast

MATRIX BACKING



cuts mat processing time in half, saves money!

Mat Pak gives you better plates and half-tones with deep, automatic, uniform packing—quality reproduction at less cost. With Mat Pak, your processing time is cut in half to give extra speed from composing room to press room, speed needed to meet close deadlines. Mat Pak has been used with greatest success in full production by leading newspapers for as long as two and one-half years. For your newspaper, Mat Pak will help curb rising production costs and ease the manpower shortage. Give Mat Pak a trial. Write to Kimberly-Clark Corp., Neenah, Wisconsin, Dept. Number PP-19.

Mat Pak is a trademark of KIMBERLY-CLARK CORP.

Kimberly-Clark Corporation
NEENAH, WISCONSIN

For More Information Circle 264 on Reader Service Card

Planning for Safety

(Continued from Page 45)

hanging from a rag as he washes the blanket is avoiding danger.

What to Know About Fires

Most printing plants have a fire code. For those who do not, assistance in setting one up is available through insurance companies. Needless to say, a bad fire results in not only economic loss to the company, but also endangers every worker's livelihood and personal safety. Everyone in the pressroom should know location of fire extinguishers, fire alarms and fire exits. All personnel should assume the responsibility of looking for fire hazards or violations and report them promptly to their superintendent.

Pressroom work is not extremely strenuous, but there is always a certain amount of lifting to do. There are certain fundamentals to observe in safe and efficient lifting. Information on this subject is available from most insurance companies who will also furnish posters and other literature.

Finally, a safe press operator should also assume the responsibility of training apprentices and other workers in the plant. They are in need of assistance from more experienced men in learning and following good safety practices. A safe operator who passes his know-how along to others is to some degree buying insurance for himself. He helps his firm become a more efficient and profitable operation. He also is protecting the equipment and facilities which provide him with his livelihood.

Correct Address for Certified

Certified Dry Mat Corp.'s ad in the December 1958 issue of PRINTING PRODUCTION contained an incorrect address. The correct address of the company is 555 Fifth Ave., New York 17, N. Y.

Use the convenient yellow Reader Service Card found in this issue for requesting free literature offered in PRINTING PRODUCTION.

THE DAILY TIMES
DAVENPORT, IOWA

The Enid Daily Eagle
ENID, OKLA.

Pittsburgh Post-Gazette
PITTSBURGH, PA.

THE CORNING LEADER
CORNING, N. Y.

ROCHESTER POST-BULLETIN
ROCHESTER, MINN.

THE DAILY NEWS-TRIBUNE
LA SALLE, ILL.

The Greenville News
GREENVILLE, S. C.

WATERBURY AMERICAN
WATERBURY, CONN.

AURORA BEACON-NEWS
AURORA, ILL.

Vicksburg Evening Post.
VICKSBURG, MISS.

The Boulder Daily Camera
BOULDER, COLO.

FREMONT TRIBUNE
FREMONT, NEB.

THE PLAIN SPEAKER
HAZELTON, PA.

St. Paul Dispatch
St. Paul Pioneer Press
ST. PAUL, MINN.

The Vancouver Sun
VANCOUVER, B. C.

SPRINGFIELD LEADER AND PRESS
SPRINGFIELD, MO.

The Daily Olympian
OLYMPIA, WASH.

The Detroit Free Press
DETROIT, MICH.

THE KOKOMO TRIBUNE
KOKOMO, IND.

THE WENATCHEE DAILY WORLD
WENATCHEE, WASH.

The La Crosse Tribune
LA CROSSE, WIS.

EVENING HERALD
ROCK HILL, S. C.

THE WALL STREET JOURNAL
CHICAGO, ILL. AND WASHINGTON, D. C.

Los Angeles Times
LOS ANGELES, CALIF.

THE NEW MEXICAN
SANTA FE, NEW MEXICO

THE DAILY HERALD
BILOXI AND GULFPORT, MISS.

THE CHRONICLE-TELEGRAM
ELYRIA, OHIO

E. L. BURGESS
Business-Production
Manager of The
La Crosse Tribune Co.,
La Crosse, Wisc., says:

"There are many things we like about the Carlson Finisher. Most important, it has saved us many hours and many steps. It is remarkably low in cost, compact and simple to operate. We think the only thing better than a Finisher is two Finishers. You will receive an order for a second machine for our composing room shortly."

"A company is known by the company it keeps"

PRODUCTION PRODUCTS FOR GRAPHIC ARTS

Chesley F. Carlson Co.

Ben Franklin Building • Minneapolis, Minnesota

For More Information Circle 33 on Reader Service Card

THE *Master* ETCHER

FOR THE *Dow* POWDERLESS ETCHING PROCESS

ALSO DOW-MASTER POWDERLESS ETCHERS

DM-24 MAXIMUM PLATE SIZE 15" x 18"

DM-35 MAXIMUM PLATE SIZE 22" x 28"

DM-48 MAXIMUM PLATE SIZE 24" x 40"

Master ETCHING MACHINE CO., WYNCOTE, PA.

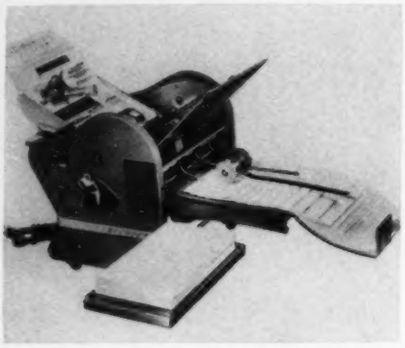
For More Information Circle 113 on Reader Service Card

EQUIPMENT & SUPPLIES

If you wish additional information concerning equipment, supplies, and/or technical literature, please make your request on *Printing Production's* Reader Service Card to be found in this issue.

Challenge Folder Designed For Small Printing Plants

Challenge Machinery Co. has introduced its Fold-Master units designed to fold and deliver sheets up to 9 in. by 14 in. at up to 7200 pieces per hour. A single lever sets up the machine to feed thicknesses from 12 lb. to 100 lb. stock



and up to five stapled sheets. Most standard folds for popular paper sizes are set up by moving the fold settings to positions shown on a chart on the side of the machine, says the sponsor. The units are available in a standard model for continuous folding operations and a light duty model for intermittent use. Circle No. 270 on Reader Service Card.

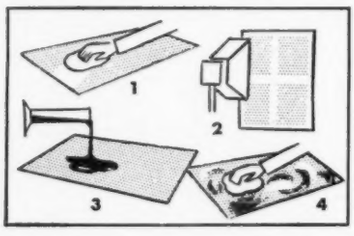
Camera Reproportions Copy To Achieve Desired Effects

The Clydesdale reproportioning camera permits copy to be condensed or expanded without changing the height and to be squatted or heightened without disturbing the width, according to Process Cameras & Equipment Inc. The special lens mount can be rotated on either horizontal or vertical axis and the copyboard can be rotated around a vertical center. The 25 in. by 25 in. copyboard accommodates copy up to approx. 17 in. by 17 in.

Features of the camera include a Goerz 14 in. Artar Red Dot coated color lens with an enlargement range of two times and a reduction range of five times. The electrical shutter has a 3 min. timer with automatic reset which controls both shutter and lights. The camera can also be used as an auxiliary process camera to produce line and halftone work. Over-all dimensions are 8 ft. long by 28 in. wide. Circle No. 259 on Reader Service Card.

New Aluminum Offset Plates Prepared by Wiping Operation

Premier Graining Co., Inc. has announced Premcote Wipe-on aluminum offset plates which are said to be ready for exposure after being wiped with Prem-



cote Wipe-on coating and allowed to dry. No further operations are necessary, states the manufacturer. It is claimed a 17 in. by 22 in. Premcote plate can be processed in six or seven minutes. All standard plate sizes and gauges are available. Circle No. 264 on Reader Service Card.

Paper Testing Instruments Check Porosity and Smoothness

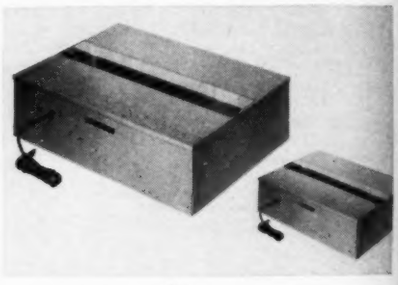
Sheffield Corporation has announced a high speed, variable area Porosimeter instrument for testing paper porosities by measuring the rate controlled air flows through the test areas. The instrument is supplied with four sets of rubber seals, each having a different orifice size. Relatively non-porous papers require a larger size test area. Approx. 2 sec. are required for a test cycle, says Sheffield.

The Porosimeter (shown left) can be used as an accessory to the Sheffield

Smoothchek gauge (right) which measures paper smoothness. Both units can be used in conjunction with the Precisionaire instrument (center) in which small floats in a column of air indicate degree of porosity or smoothness on a scale. Circle No. 254 on Reader Service Card.

Table Top Halftone Dot Detector Offered by nuArc

The nuArc Company has announced the Halftone Dot Detector, a table top viewer for examining the opacity of halftone dots in either positives or negatives. Designed to improve quality control of

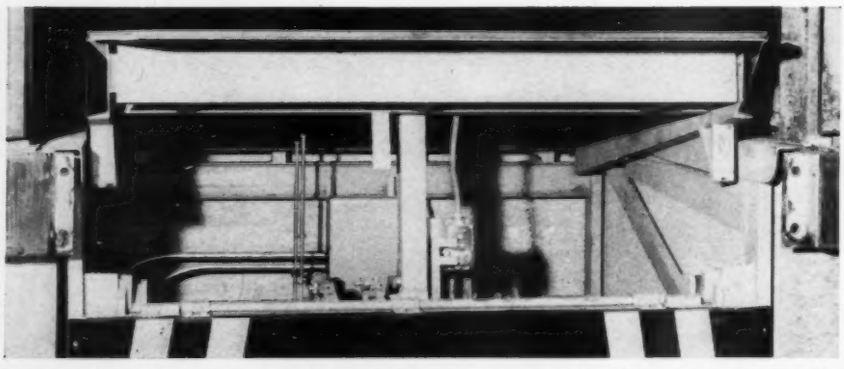


printing plates, the viewer is said to permit an immediate decision as to whether to proceed to make a plate or not from a particular piece of copy. The Dot Detector is available in two sizes, 24 in. by 18 in. by 7 in. or 10 in. by 8 in. by 4 in. Circle No. 265 on Reader Service Card.

Web Break Detector and Web Breaker Redesigned by G-E

A redesigned mechanical web break detector and web breaker for use with color and black-and-white printing presses is offered by General Electric Co.'s Industrial Control Dept. Designed for operation at press speeds up to 1800 f.p.m., the detector consists of a two-pole, normally open interlock operated by an adjustable shoe arm and cam.

The contacts are held open when the shoe is riding on a continuous web. When the sheet breaks, they are closed by cam action, allowing the shoe to move to tripped position. One interlock stops the drive, the other actuates the web



Power Dock Compensates for Truck Bed Slope—A power dock which will automatically adjust its deck plate to compensate for up to 4 in. of out-of-level truck beds at loading platforms is being manufactured by Hartman Metal Fabricators Inc. Since the central structural supports of the dock's top plate all run laterally, the deck warps or bends to conform with the level of the truck bed without loss of structural strength, according to the sponsor. Circle No. 251 on Reader Service Card.

For More Information Circle 96 on Reader Service Card→

LOOKING FOR

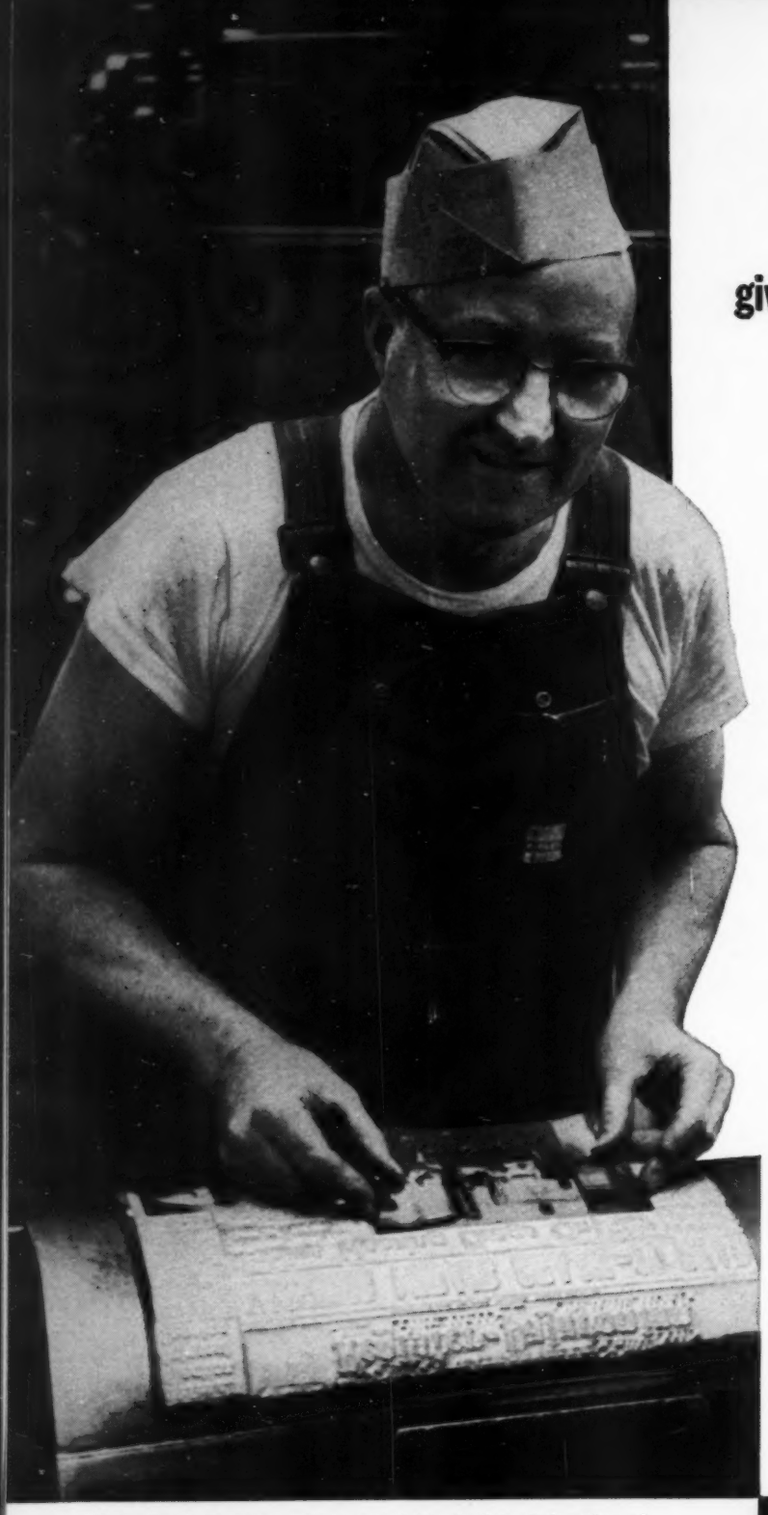
IN LETTERPRESS INKS?

Speed King's 18 easy-to-mix colors and black are all you need for fast, high quality color work. Packed in 1 and 5 lb. cans, ready to run on any job in the shop. Ask your IPI man for a Speed King color card . . . it tells the whole story!

IPI, IC and Speed King are trademarks of Interchemical Corporation.

CORPORATION DIVISION

EXECUTIVE OFFICES: 67 WEST 44th STREET, NEW YORK 36, N. Y.



Zeke Boyd, Pressroom Foreman of the Register-Pajaronian of Watsonville, Calif., shows how easily a Scan-A-Graver plate is attached to the stereo for direct printing.

"Direct printing with SCAN-A-GRAVER plates gives us sharp, clear illustrations"

says Zeke Boyd, Pressroom Foreman of the Register-Pajaronian, Watsonville, Calif.

"The crisp cleanness of our newspaper, and particularly our photographs, has won us many compliments, thanks to direct printing with Scan-A-Graver plates," reports Mr. Boyd. "This fine reproduction is the main reason we've been leasing a Scan-A-Graver for eight years now. Another reason is that engraving electronically with our Scan-A-Graver helps us to work closer to deadlines. Because of their flexibility, Fairchild engravings are very easy to mount directly on the stereo and permit us to go to press just minutes after a photo comes in."

Scan-A-Graver plates provide high quality reproduction by minimizing the loss of halftone detail which often results from matting and stereotyping. Clean dots, with freedom from burrs and undercutting, provides sharp, crisp reproduction.

Fairchild service pays off, too

The Fairchild lease and services insure that your Scan-A-Graver always gives dependable, high quality engravings. Under the lease, Fairchild installs your Scan-A-Graver and trains operators at no extra cost. Fairchild also provides 24 hour service, replacement parts and application assistance.

Investigate the Fairchild Scan-A-Graver or Scan-A-Sizer as a means of getting high quality photo-reproduction in *your* shop. Why not write for full information today?

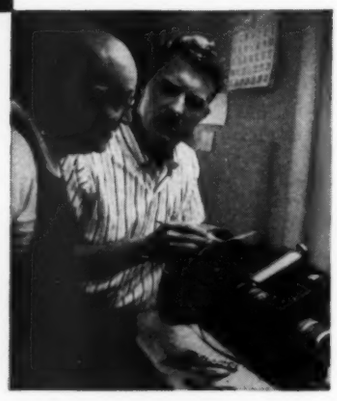
Fairchild Graphic Equipment, Fairchild Drive, Plainview, Long Island, New York, Dept. 65.

FAIRCHILD GRAPHIC EQUIPMENT

SCAN-A-GRAVER® • SCAN-A-SIZER®

Electronic Engraving Machines

Division of Fairchild Camera and Instrument Corporation



TEAMWORK PAYS!
Register-Pajaronian photographer, Sam Vestal, and Pressroom Foreman, Zeke Boyd, work closely together in maintaining superior quality of photo reproduction in their newspaper. Says Sam, "Because we are able to get excellent reproduction of our photos, I am encouraged to take better pictures."

DISTRICT OFFICES: WALPOLE, MASS. • ATLANTA, GA. • CHICAGO, ILL. • LOS ANGELES, CALIF. • TORONTO, ONT.

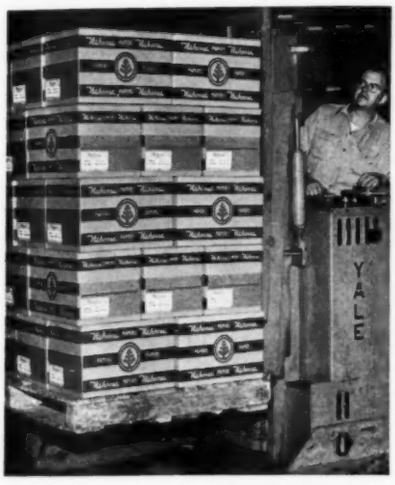
For More Information Circle 58 on Reader Service Card

breaker which severs the web just ahead of its entry to the press.

The detector has four adjustable zones of operation ranging from 34 to 142 deg. Latch-up and lock-out positions facilitate threading and narrow web operation of the press. Circle No. 255 on Reader Service Card.

Skid-resistant Cartons Used for Paper Shipments

Nekoosa-Edwards Paper Co. is offering skid-resistant shipping cartons treated on top and bottom sides with DuPont's Ludox colloidal silica. Testing showed Ludox gave 50% more skid resistance



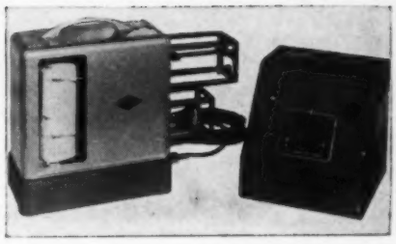
than mechanical roughening, did not deteriorate with age, and was only slightly affected by repeated rubbing, according to Nekoosa-Edwards. Since the coating cannot be detected by sight or touch, each carton treated with Ludox carries a printed identification. Circle No. 256 on Reader Service Card.

Dry Bonding Adhesive Cements Paper, Other Materials

Heatweld, a dry bonding material, has been introduced by Adhesive Products Corp. The adhesive is applied to the material, fabric, leather, paper or plastic, and allowed to dry. A bond is obtained when heat is applied. Heatweld is transparent and is said to be non-staining and resistant to both washing and dry cleaning. It is supplied in liquid form and can be applied by brush, roller, spray or conventional coating machine. Suggested uses include adhering patches to inserts, covering books, and for leather goods. Circle No. 257 on Reader Service Card.

Humidity and Temperature Recorder Has Variable Limit Alarm

An indoor or outdoor, two piece humidity and temperature recorder has been announced by Serdex Inc., on which the alarm range is determined by locating electrical contact blocks on a positioning post in the sensing section. If a recording pen contact touches one of the limit blocks, the alarm circuit is energized until manually reset. Accuracy is said to be ±3% r.h. over 15% to 95% r.h. op-



erating range at temperatures from +32 deg. to +130 deg. F. The sensing section (left) measures 12 in. by 15 in. by 6 in. The signal cabinet (right) measures 8 in. by 8 in. by 8 in. Circle No. 252 on Reader Service Card.

Distinctive Orange Color Used To Identify 500 Syndicate Mat

A brilliant orange color has been employed for identifying a new syndicate mat made by New Products Div. of The Beveridge Paper Co. This mat is designed for flat casting stereo work only. May be used in the stereotype flat casting box for multiple casts with or without vacuum pressure. Circle No. 250 on Reader Service Card.

Silk Screens Available For Industrial Application

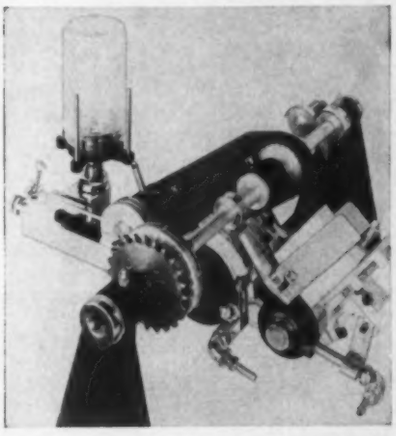
Silk screens for industrial application are being offered by Crown Electronics Div., Marathon Metal Products, Inc. These silk screens are designed for printing electrical computing instruments and equipment. They can be used for decorating objects with painted or baked surfaces such as name plates, ash trays, toys, TV sets or chassis. Circle No. 261 on Reader Service Card.

Less Exposure Time Required by Kodagraph Autopositive Paper

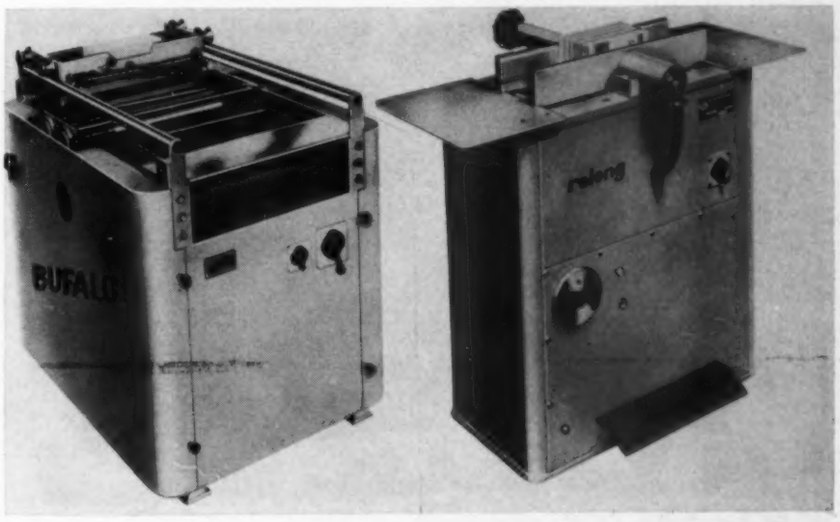
Sharper engineering drawing intermediates requiring one-third less exposure time are possible with Kodagraph Autopositive Paper Translucent, says Eastman Kodak Co. Tests show the paper to have 60% greater speed, higher effective contrast, and increased tolerance to room light, according to Kodak. It is available from Kodak dealers in standard sheet and roll sizes.

Cheshire Rotary Head Applies Individual Labels

Cheshire Inc. has announced an interchangeable head for applying cut or individual labels on the Cheshire labeling



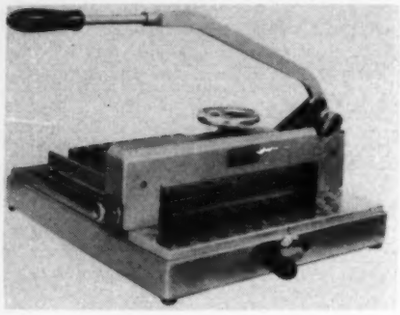
machine. It will accommodate labels from ⅜ in. by 2 in. to 3½ in. by 5 in. Labels may be ungummed, or cut from gummed stock. Circle No. 253 on Reader Service Card.



Binder and Back-Pressing Machines—Didde-Glaser, Inc. has been named distributor for the Buffalo Sewingless binder (left) and the Rolong Hydraulic Back-Pressing machine (right). The two machines can be operated as a unit. The binder is designed for threadless binding of book back work up to 13¼ in. in length and in blocks of approx. 2000 pages each. Hourly output, depending on thickness of books and number of operators, is approx. 800 books per hr., sponsor states. One foot pedal operates all hydraulic controls on the automatic book presser. Books are stacked 4 in. high, held back down in a clamping device. After clamping pressure is reached, 11 vulcanized rubber rollers move in an oscillating motion, rubbing covers firmly on books. A dust exhauster removes all dust at the milling stage of the machine. Circle No. 274 on Reader Service Card.

Manual Paper Cutter Has Wheel Measuring Device

A new front measuring wheel calibrated to 1/32 in. to provide for accurate cutting is a feature of the Triumph manual paper cutter, announced by Michael Lith



Sales Corp. The wheel moves the back gauge forward and backward. This portable cutter is available in two sizes: 14 in. and 18 in. Circle No. 268 on Reader Service Card.

Litho Plate Graining Machine Uses No Liquids

The P. McTaubner Engineering Co. has introduced a lithographic plate graining machine, the Continental Mark Ninety-Six, which is said to grain both aluminum or zinc plates at a speed of 6 sec. a foot or approx. 20 plates 47¼ in. by 60 in. in 1 hr.

Plates are kept in a fixed position in the machine and dry sand or grit blown against the metal at a fixed angle. Plates are cleaned by a rotary air washing system. All electric motors and drive units are placed inside the machine. All drive belts are protected by double and triple V-belt systems. Push button stations are flush in the machine cabinet next to operator's position. All machines are automatically controlled. Circle No. 262 on Reader Service Card.

New Models Added to nuArc Vacuum Printing Frames

Three new models have been added to the Production Dynamo line of vacuum printing frames by the nuArc Company. These printing frames are known as "flip-tops" because the vacuum frame is loaded in the conventional manner face up, after which the release knob allows the vacuum frame to pivot face down for exposure. The unit contains a

built-in automatic carbon arc lamp and carbon arc reflector and can be operated from one position. Largest model measures 50 in. by 62 in. Circle No. 266 on Reader Service Card.

Vandercook No. 425 Proof Press With Improvements Rated 1500 i.p.h.

A high speed proof press has been announced by Vandercook & Sons, Inc. on which can be handled proofs and reprints of forms as large as full newspaper pages at speeds up to 1500 i.p.h.

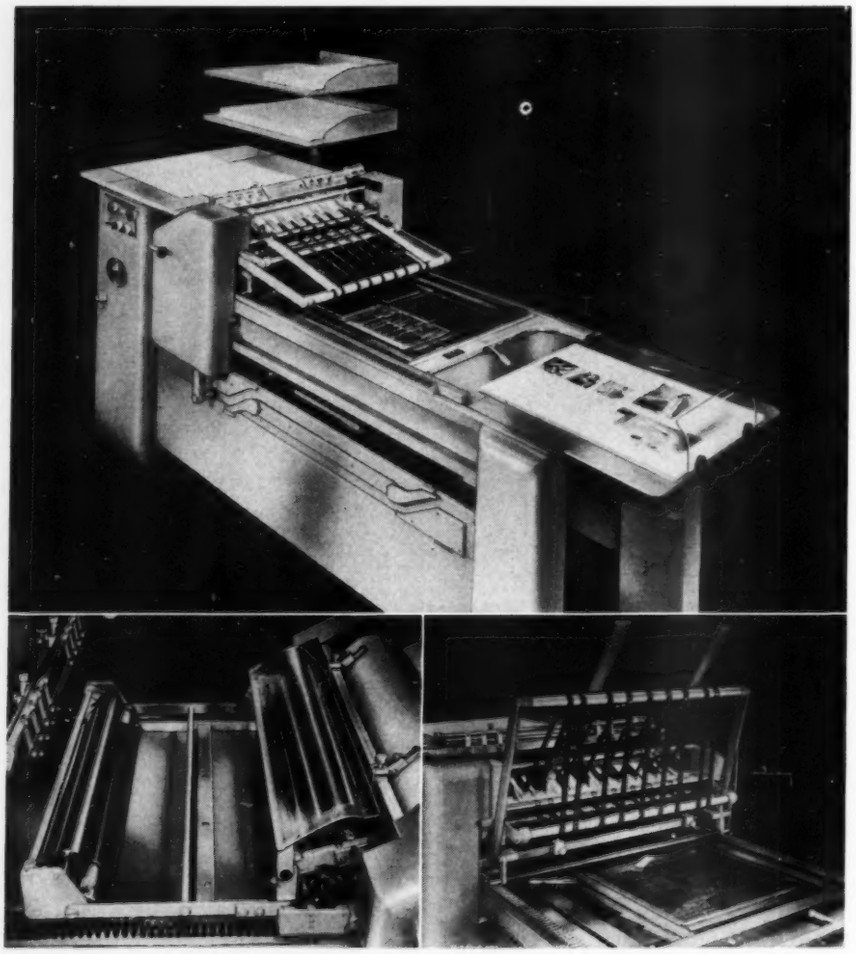
The Vandercook 425 Page Safe Electric Proof Press measures 25 in. between bed bearers, and with capacity for sheets up to 24¾ in. by 27 in. It is completely power operated and equipped with a number of revolutionary features and controls to help printers, typesetters and newspapers meet the demand of advertisers for quantity proofs more economically and efficiently.

For newspaper use, the Vandercook 425 is specially equipped (a) To print full size newspaper pages locked in stereotypes chases without printing the chase, (b) With steel raising blocks to bring the bed of the machine close to the height of makeup trucks, and (c) Lever controlled floor plate for adjusting height of the makeup truck to permit sliding pages from truck to press bed and back again.

According to a spokesman for Vandercook, the machine is provided with an efficient inking system consisting of four synthetic rollers, two vibrators, one rider, and 16 in. ink plate. In addition, standard equipment for the press includes the automatic ink feed, which eliminates an ink fountain by feeding ink directly and automatically in any desired amount from a standard 1 lb. ink can.

To make the press safe to operate, Vandercook engineers designed a rubber covered safety bar for the front end of the cylinder carriage which will stop the press instantly upon contact with anything on the bed over type high.

Other features incorporated in the new Vandercook 425 include (d) Elimination of foot pedals, (e) Electrical controls for cylinder trip, speed change and automatic single cycle operation, and (f) A built-in static eliminator and electric counter. Circle No. 277 on Reader Service Card.



Vandercook 425 Page Safe Electric Proof Press is shown in upper picture. Features include sheet delivery with built-in static eliminator. Simplified automatic controls provide for press operation without foot pedals. Lower left is ink distribution system—ink is fed from a standard 1 lb. ink can. Lower right shows the rubber covered safety bar attached to front end of impression cylinder carriage. Press is stopped when carriage strikes anything left on bed over type high.

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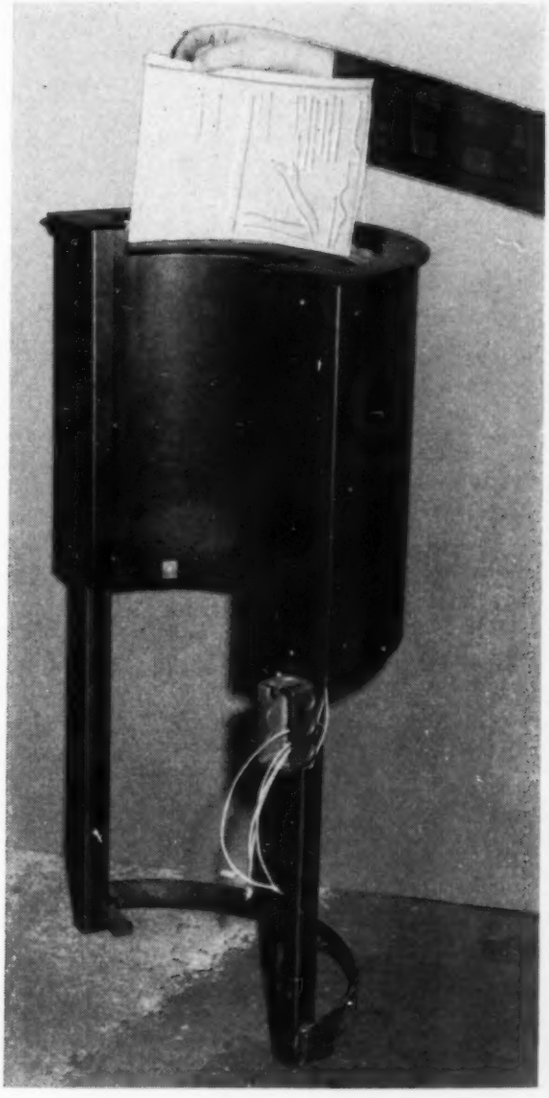

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Stanford Offers Web Guides In Vacuum and Hydraulic Models

Stanford Engineering Co. is now offering automatic web guides in vacuum type or hydraulic type units. The vacuum type is said to be the fastest responding, while the hydraulic is recommended for installations requiring greater power. Both styles are said to be accurate and able

to make corrections within ±0.010 in. deviation in the web. There are three basic styles of Stanford web guides: One for guiding the web in its existing plane; those for guiding the web in a full 180 deg. change in direction; and those for guiding the web in a change from horizontal to vertical planes. Circle No. 260 on Reader Service Card.

Futura Demibold Oblique Type Added by Bauer Alphabets

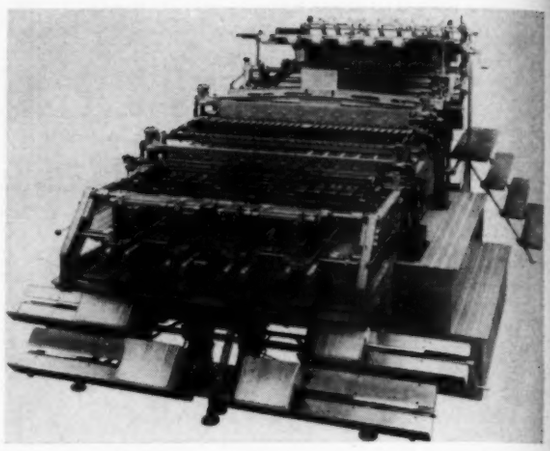
Futura Demibold Oblique has been added to the Futura family of type fonts by Bauer Alphabets, Inc. The new type is available in 8, 10, 12, 14, 18, 24, 30, 36, 48 and 60 pt. fonts. Circle No. 273 on Reader Service Card.

Floor Covering Resists Acids in Engraving Rooms

A synthetic resin floor covering, called Stonclad, has been developed to resist corrosion damage from acids and alkalies by the Stonhard Company Inc. The flooring material will withstand hot concentrated alkaline solutions up to 170 deg. and nitric acid up to 15%, according to the manufacturer. Applications would include its use in photoengraving departments. The material is applied by trowel. It is packaged in three ready-mix parts which are combined at the job site. Circle No. 271 on Reader Service Card.

Book Folders in New Sizes

—Two quad book folders in new sizes are available from American Type Founders Co. Inc. The Camco Quad 52 in. by 76 in. will produce four 16-page signatures, all with closed heads, measuring 9½ in. by 13 in. The 48 in. by 62 in. Camco Quad will produce four 16-page signatures, with closed heads, measuring 7¾ in. by 12 in. Both machines will produce two 32s, made of inserted 16s. Smaller sheet sizes down to 25 in. by 38 in. can also be handled. The signature slitting knives may be adjusted outside the machine. Two stop gauges are used, one for the perforation and another for the knife fold. Cross feeders are used on all models and sheets are delivered in stacker troughs. Circle No. 278 on Reader Service Card.

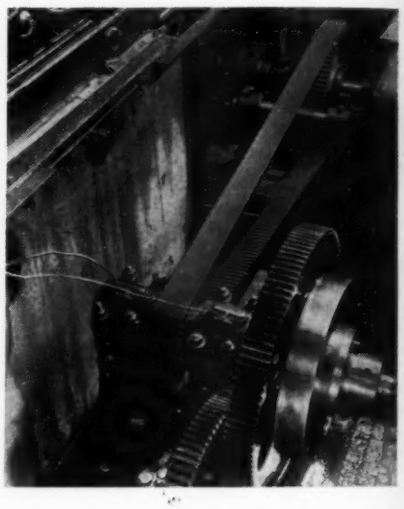


Fabricated Timing-Belt Drive For Rotary Newspaper Press

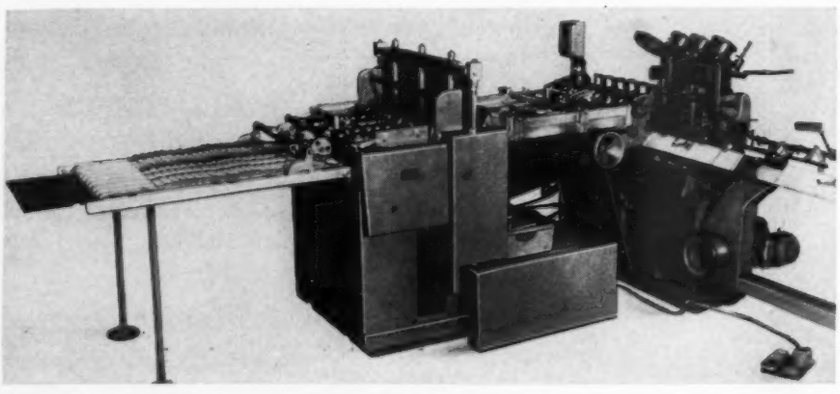
Application of a timing-belt drive has solved a problem on a Scott rotary press at Spokesman Publishing Co. Inc., New Brunswick, N. J., publisher of newspapers and circulars. It replaced a steel chain drive. The Spokesman's press is driven by a 30 h.p. motor, with a 10 h.p. starting motor. On several occasions the former drive caused breakdowns.

The timing-belt drive consists of a 26XH400 driver pulley, 7.2415 pitch diam., ⅞ in. pitch, 4 in. wide; an 84XH400 driven pulley, 23.396 pitch diam., ⅞ in. pitch, 4 in. wide, and a 1750XH400 timing belt, 175 in. pitch length, ⅞ in. pitch, 4 in. wide.

The timing belt and pulleys were supplied by T. B. Wood's Sons Co. In this type of drive, a toothed belt engaged grooved, gearlike pulleys. The relation between timing belt and matching pulley is similar to that between an internal ring gear and its pinion. The belt teeth are molded from neoprene and covered with a facing of nylon duck. Sandwiched between the teeth and the neoprene backing are continuous, helically wound steel cables. These constitute the load-carrying elements of the belt.



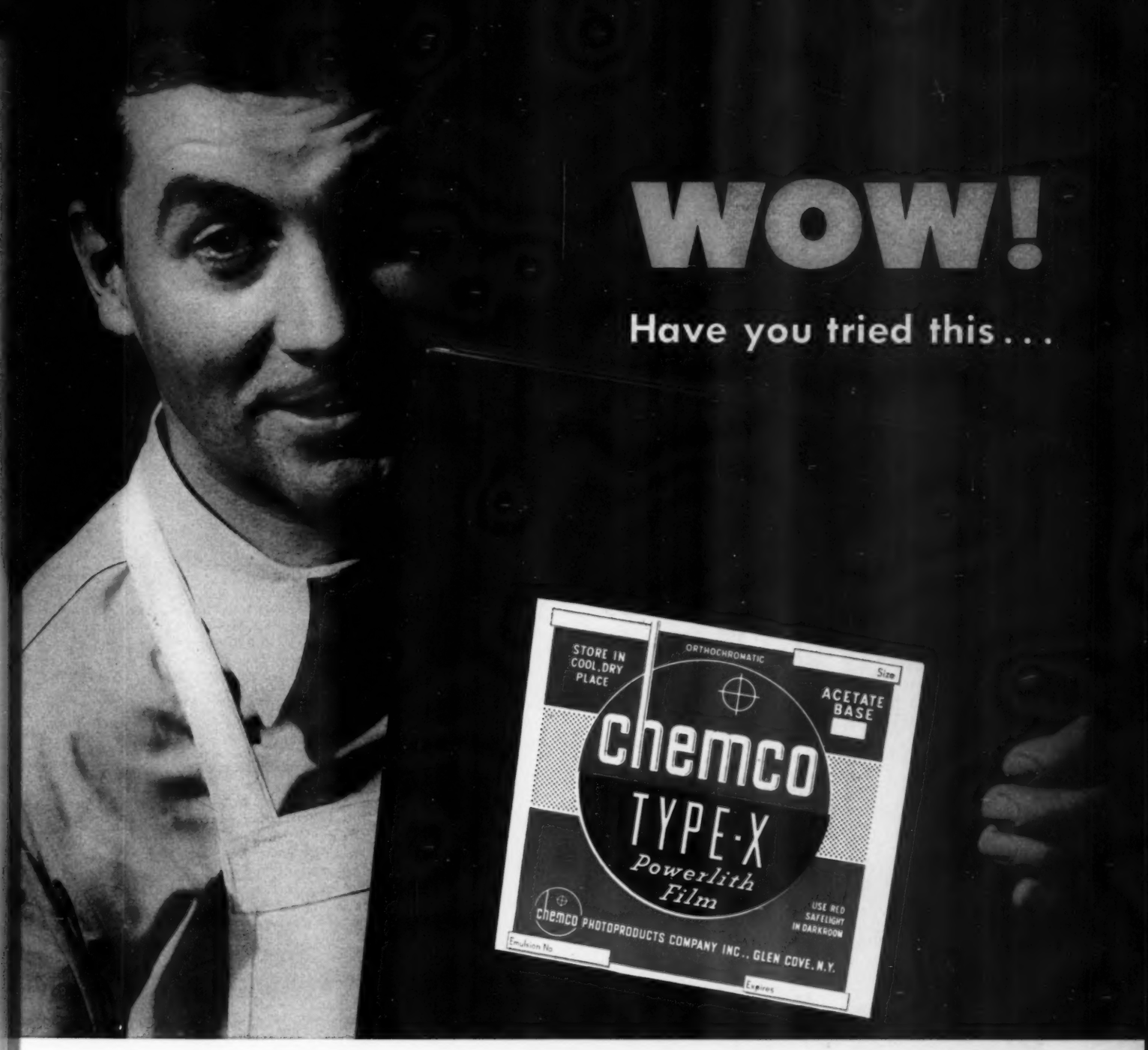
Pres. Warren Glaser and Supt. Aubrey Gluck of Spokesman Publishing Co. report the following advantages of the drive: (1) Press can be run at top speed. (2) Press vibration greatly reduced. (3) Two-color printing is more accurate because of reduced vibration. (4) Motor pit is clean and safe. (5) Start-up is smooth. (6) Operation is quiet. (7) No need for lubrication. Circle No. 279 on Reader Service Card.



Front Trimmer Machine—An automatic phamplet bindery front trimming machine which embodies the Christensen gang stitcher has been announced by William Gross & Son Inc. Front trimmer wire stitching operation is performed at the same time as the trimming. The machine is said to handle up to 7000 signatures an hour. Handling work up to 27½ in. long, the front trimmer delivers with an adjustable stacker, permitting pamphlets to be counted and picked up in batches of five or any multiple of five up to fifty. Circle No. 280 on Reader Service Card.

New Bearing Lubricator Injects Grease as Needed

A bearing lubricator has been announced by Anchor Chemical Co. which is designed to automatically inject the proper amount of grease as needed and indicate when the reservoir of lubricant is low. Measuring 2¼ in. by 1⅛ in. in dia., the lubricator can be installed one to each bearing by removing the Alemite or Zerk fitting and screwing the lubri-



New CHEMCO TYPE-X Powerlith Film

has faster emulsion speed, makes better halftones

New Type-X Powerlith has the fastest lithographic emulsion you can buy. This faster film gives superior halftones because it requires less detail-destroying flashing.

Type-X was developed in the Chemco laboratories as a result of a major break-through in emulsion research. Now, thoroughly tested and proven, it is helping to increase the profits of lithographers everywhere.

Speed is only one of the advantages of Type-X. It has very wide latitude and provides an extremely hard dot. The very high orthochromatic character of Type-X makes possible maximum speed, efficiency and economy regardless of the lighting source used. It is particularly recommended for halftone exposures where both quality and high speed production are important. It is a perfect companion for regular Powerlith film which is well suited for line work.

Type-X is available in a full range of roll and sheet sizes. Ask for a demonstration in your plant... see what it will do for you.

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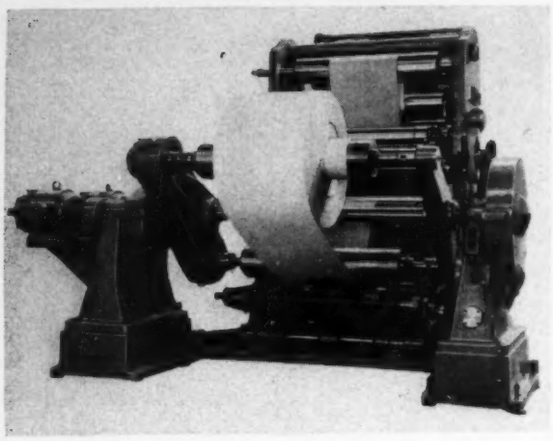
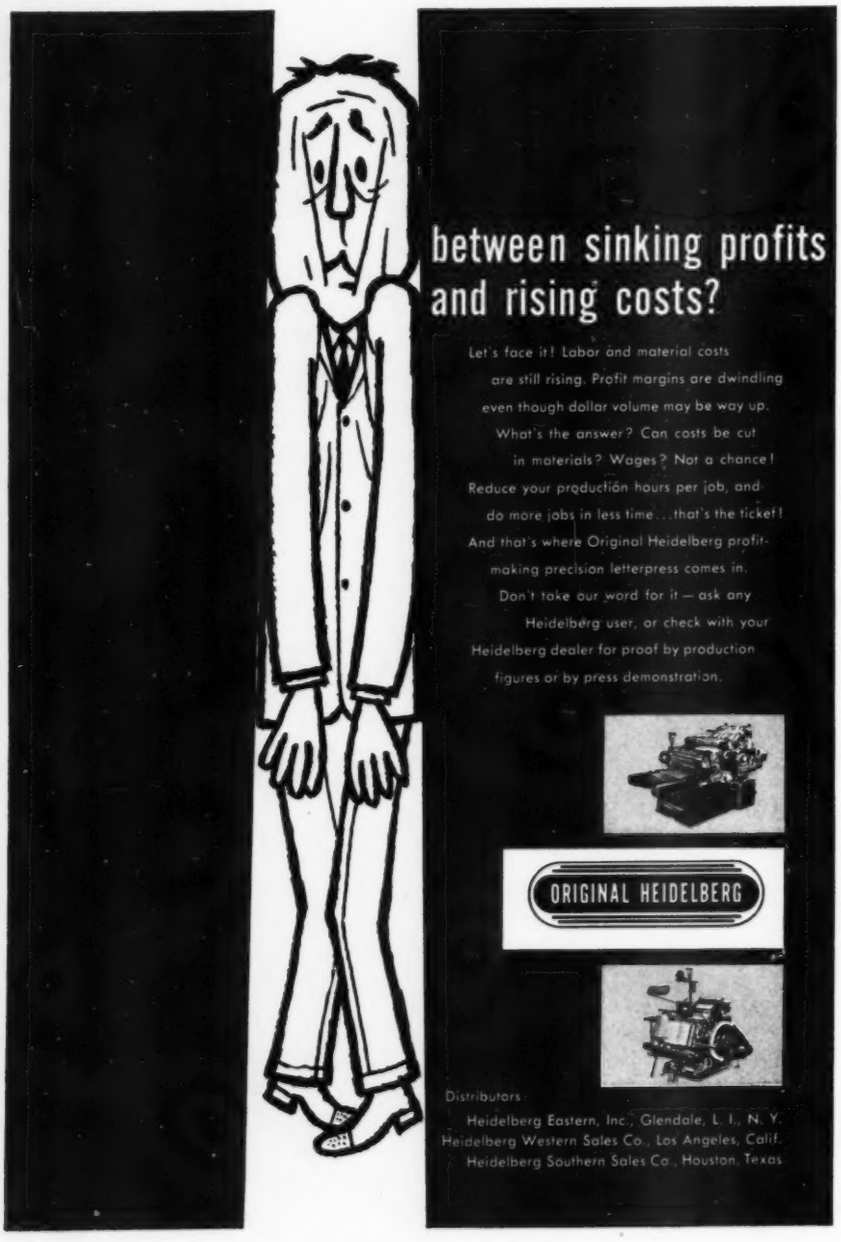


Rewind Becomes Standard—A center rewind unit with electronic web tension control is now standard equipment on the Model American Cerutti rotogravure press. The rewind unit includes a semi-automatic flying splicer. Web tension control is said to handle a wide range of materials from cellophane to light board. The rewind unit rewinds webs from 32 in. to 55 in. wide, in roll diameters up to 31½ in. The rewind splices at speeds up to 1000 f.p.m.
Circle No. 275


between sinking profits and rising costs?
Let's face it! Labor and material costs are still rising. Profit margins are dwindling even though dollar volume may be way up. What's the answer? Can costs be cut in materials? Wages? Not a chance! Reduce your production hours per job, and do more jobs in less time...that's the ticket! And that's where Original Heidelberg profit-making precision letterpress comes in. Don't take our word for it — ask any Heidelberg user, or check with your Heidelberg dealer for proof by production figures or by press demonstration.
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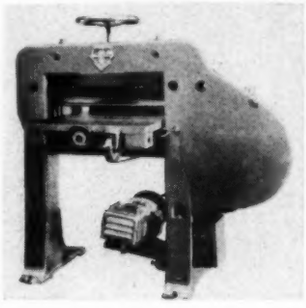
cator into place. Circle No. 269 on Reader Service Card.

Small Size Power Paper Cutter Announced by Michael Lith Sales

The Michael-Miracle power paper cutter was designed to cut paper in small press sizes up to 17 in. by 22 in., reports Michael Lith Sales Corp. Features mentioned by sponsor are: Motor operates

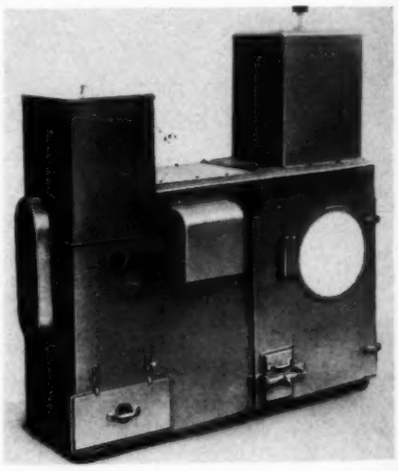


only when actual cut is made; cutter operates at 30 strokes per min.; combination 2 h.p. motor; electro-magnet brake; two-handed push-button operation; two non-repeat devices with two safety lights. Circle No. 276 on Reader Service Card.

Bronze Powder Cleaning Machine Offered by Korn

A bronze powder cleaning and sifting machine, called the Dreissig BR, which is said to accommodate about 50 lbs. of used bronze powder in a batch and sift it within one-half hour, has been announced by Henry P. Korn.

The used bronze powder is taken up by a duct roller and sucked through a revolving preliminary filter sieve by a high pressure blower. This sieve



is cleaned by a brush and the bronze powder is then blown through the main cleaning sieve. In the following bag filter section the air is separated from the bronze powder, which is finally received in collecting boxes at the lower front of the machine.

Five spare main filter sieves and two special sieves are supplied with each machine. Over-all measurements of machine are approx. 4 ft., 4 in. long by 1 ft., 4 in. wide by 4 ft., 3 in. high. Circle No. 281 on Reader Service Card.

PRINTING INDUSTRY PATENTS

Covering patents issued September 2, 9, 16, 23 and 30.

All new patents for the Graphic Arts are reported exclusively for PRINTING PRODUCTION by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc. presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. PRINTING PRODUCTION is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Composing Room:

TYPOGRAPHICAL MOLD

The mold is of the type covered by patent 2,029,529. The present construction avoids the extension of the gate block of the crossblock assembly beneath the type blocks, which eliminates a source at which wearing of the surfaces would produce undesired spaces. Mechanism is included for the removal of air from the type cavity. Patent 2,855,095 by Maurice H. Hartzell.

Platemaking:

COMPOSITION FOR COATING VINYLITE NEGATIVES

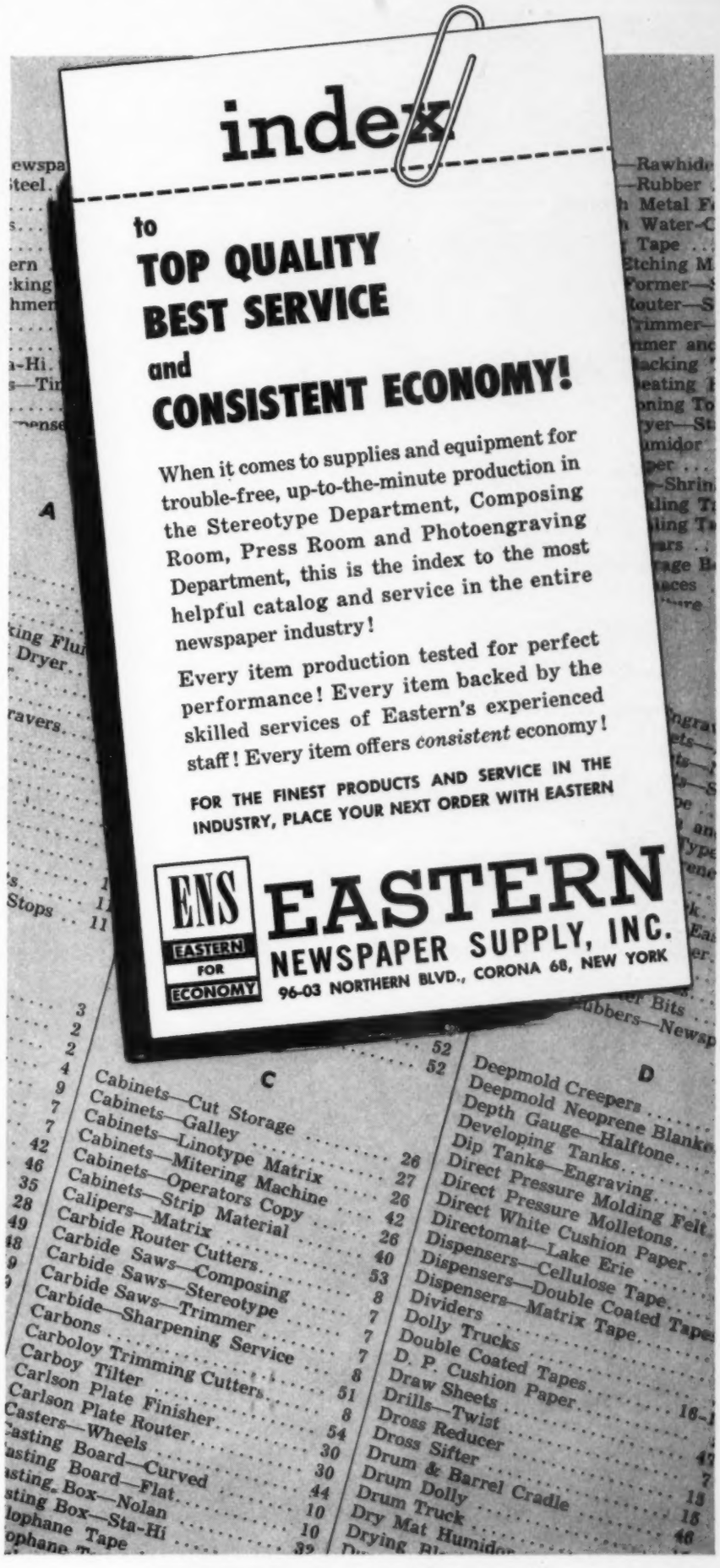
This composition is for a protective and engravable coating for use in making glass and plastic engraving plates which are resistant to moisture and accidental scratching. The coating is prepared by dissolving beeswax in turpentine by the application of heat; dissolving castor oil in benzol and then combining the solutions. Patent 2,855,323 by Nathan B. Hughes.

PHOTOMAGNETIC PRESS PLATE

The resist materials of this process can be used for long periods without degradation. Numbers of copies of superior resolution and sharpness can be obtained from one printing surface. The support has one layer of an ester of polyvinyl alcohol having a radical of the monocyclic aryl group of the benzene series, and gamma ferric oxide. A photographic gelatino-silver-halide emulsion layer is superposed on this layer. Patent 2,856,284 by Franklin A. Hamm, assigned to Eastman Kodak Co.

ETCHING MACHINE

While etching acid is continuously sprayed against a plate during an etching process, this machine provides for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Junior Execs Visit Plant—Albert E. Sterner (right), president of Philadelphia's Junior Executives Club of the Graphic Arts, discusses with Bernard Green (second from left), executive vice president and general manager, Majestic Press, Philadelphia, one of an eight million run catalog printed on the firm's new Harris-Cottrell web offset press. William G. Killhour, Club program chairman, and Jack Lipkin, Majestic director of manufacturing, look on.

imparting an irregular motion to the plate, which insures that the etching will be uniform throughout the entire plate area. The patent has devised certain important improvements over the constructions of patents 2,669,048 and 2,700,838. Patent 2,857,697 by Norman C. Schutt, John L. Bjelland, and Floyd W. Flynn, assigned to Powers Chemco, Inc.

LIGHT SENSITIVE COATING

Invention is based on the discovery that a mixture of an albumen solution and an ammonium bichromate solution can be mixed together to provide a photolithographic zinc or aluminum plate coating which will not separate while standing or in use. The albumen solution contains egg albumen, water, ammonium hydroxide, and the ammonium bichromate solution contains a dibasic ammonium phosphate, ammonium nitrate, ammonium bichromate and water as required. Patent 2,858,214 by Lawrence L. Pries.

Printing Presses:

VARIABLE SPEED REVERSING DRIVE FOR INK PUMPS

The construction of the pump drive is similar to those covered by patents 1,311,198 and 1,348,900. It is characterized by an individual pump plunger or piston for each column of print and by the grouping of these plungers in banks corresponding to the page width. The parts are so connected that the drive ratio can be selected from outside the drive housing. Fine regulation of the ink pumps for monotone or key color printing and color or spot color printing is assured. Patent 2,854,853 by Ray A. Willoughby and Emory W. Worthington, assigned to R. Hoe & Co., Inc.

PRINTING PRESS INK MOTION ENCLOSURES

The enclosure prevents the evaporation of ink both while the press is in operation and while it is idle. Inks containing highly volatile solvents may be used which permits high operation of the press without the use of dryers. Patent 2,854,924 by Bromwell Ault and Emory W. Worthington.

APPARATUS FOR DRYING PRINTING INKS

The apparatus is of the open burner flame-type. To avoid burning the web, an automatic cut-off is provided for extinguishing the flame should the tracel of the web be stopped. Patent 2,855,190 by Charles A. Rieger, assigned to Rieger Printing Ink Co., Ltd.

TRIPPING MECHANISM FOR OFFSET PRESSES

The tripping device is for use with a printing unit of the type shown in pat-

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Keeping laboratory tab on type metal is of first consideration with Imperial. Our records must continually show what metal you have, how much and when it needs attention. Furthermore, through periodic analysis Imperial servicemen must call at regular intervals. Keeping tabs on your metal gives you the type of service and performance you deserve. No other metal company keeps closer tabs. May we prove this to you?

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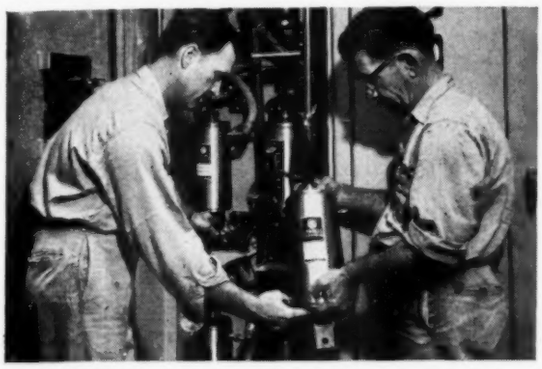
COMPACT, UNITIZED CONSTRUCTION of G-E low-voltage draw-out switchgear efficiently operates with minimum of maintenance. Dry-type transformer is conveniently wall-mounted above lighting panel.

GENERAL ELECTRIC PRESS DRIVE control panels include: selector, magnetic and rectifier panels. G-E switchgear, with air circuit breakers, provides safer power distribution.



FULLY ENCLOSED cabinet containing ignitron rectifier tubes is examined by F. L. Gaussiran, chief electrician (left) and J. P. McKenna, electrician. Highly dependable units require only periodic inspection.

RECTIFIER FIRING circuits and tubes conveniently housed in rectifier compartment are easily accessible for inspection. Fully enclosed bus duct is top-mounted.

FAST RESPONSE auxiliary press control is line-of-sight mounted on a new Hoe press. Location of control facilitates press operation, reduces operator fatigue.

PRECISELY CONTROLLED ADJUSTABLE-SPEED POWER for *Miami News* main presses available from 24 General Electric 40-hp DC Drive Motors.

MIAMI NEWS SELECTS G-E DRIVES FOR . . .

Proved Reliability, Flexibility, Performance

Miami News gears for expanding circulation with a modern plant featuring G-E electronic d-c drives on 21-unit—3-folder Hoe presses

Modern in every respect—from its attractive exterior to efficient G-E drives—the new *Miami News* facilities represent one of the finest newspaper plants in the nation.

Complete coordination of the electrical system, including drives, switchgear and high-voltage G-E lighting was furnished by a team of G-E engineers familiar with the particular problems and interests of the *News* and the newspaper industry, and factory engineers skilled in the design and application of printing press drives.

With this installation, the *Miami News* joins more than seventy other major metropolitan newspapers who have selected G-E electronic d-c drive systems to provide production reliability, operating flexibility, ease of maintenance and over-all high performance on approximately 200 high-speed metropolitan presses.

For further information on system-engineered press drives—DC Electronic Unit Drives (Bulletin GEA-5523) for high-speed metropolitan presses, and the new Inductrol® DC Group Drive (Bulletin GEA-6763) for smaller presses—contact your local G-E Apparatus Sales Office or write to General Electric Company, Section 653-47, Schenectady, N. Y.

Engineered Electrical Systems for Newspaper Plants

GENERAL ELECTRIC

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ent 2,366,335, in which two impressions are printed simultaneously on the two sides of a web by a pair of blanket cylinders, each serving as impression cylinder for the other. The web travels in a horizontal path and the two printing units are superposed, one directly over the other. Patent 2,855,846 by Charles A. Harless and Burton C. Polglase, assigned to R. Hoe & Co., Inc.

DOCTOR MECHANISM

For rotary intaglio printing machines, this doctor is fully enclosed to protect it against ink and other soil. Vibration is minimized and the pressure of the blade against a cylinder can be set accurately. Such preset pressure may be re-established automatically upon swinging the doctor mechanism from non-operating to operating position. Patent 2,854,923 by William F. Huck, assigned to R. Hoe & Co., Inc.

PLATE CLAMPING MECHANISM

Stereotype plates can be held on a printing cylinder by means of hooks which engage in recesses in the underside of the plate. The clamping units can be operated in unison, but the clamping action of any unit may be independent of the others. This is accomplished by mounting the clamps on a bar which is mounted for sliding and pivotal movement of the cylinder. There is an adjusting screw and a pivotal connection between the adjusting screw and the central part of the bar, whereby the bar may be adjusted chordwise and may pivot for engaging hooks carried in recesses out of alignment with the cylinder axis. Patent 2,857,841 by Emory W. Worthington and Carl H. Ringe, assigned to R. Hoe & Co., Inc.

MEANS FOR DAMPENING ROTATING CYLINDER SURFACE

An enclosed recirculating dampening system for lithographic plate cylinders avoids the dissipation of toxic and corrosive ink repellent solutions into the press room atmosphere by directing the particles directly to the point of use and using a vacuum system to exhaust those moisture particles not adhering to the cylinder. Patent 2,856,848 by Howard A. Pritchard, assigned to Harris-Intertype Corporation.

INKING AND WATERING FOR PRINTING PRESSES

For letterpress and offset printing, this mechanism is designed to supply a uniform even coating of ink to the press by insuring that the transfer or ink contact roll remains continuously in contact with the press roll to which it supplies ink and that it approaches the fountain or ink supply roll smoothly and continuously so that the coating of ink on that roll is gradually removed from it, layer by layer, and supplied as an even coating to the press roll. The watering apparatus operates in a similar manner. Patent 2,857,840 by Carl O. Bachman.

PLATE CYLINDER AND INKING ROLLER THROWOFFS

This plate cylinder must be moved to separate it from a cylinder above or below in effecting throw off. It disables the mechanism which produced roller throwoff and brings into operative position a manual control for moving the form rollers into contact with the plate cylinder for preliminary inking of the cylinder. It then returns the mechanism to full automatic operation. Uniform pressure is the result, with elimination of bounce in the form rollers. Patent 2,853,943 by Arthur G. Royer, assigned to Harris-Intertype Corporation.

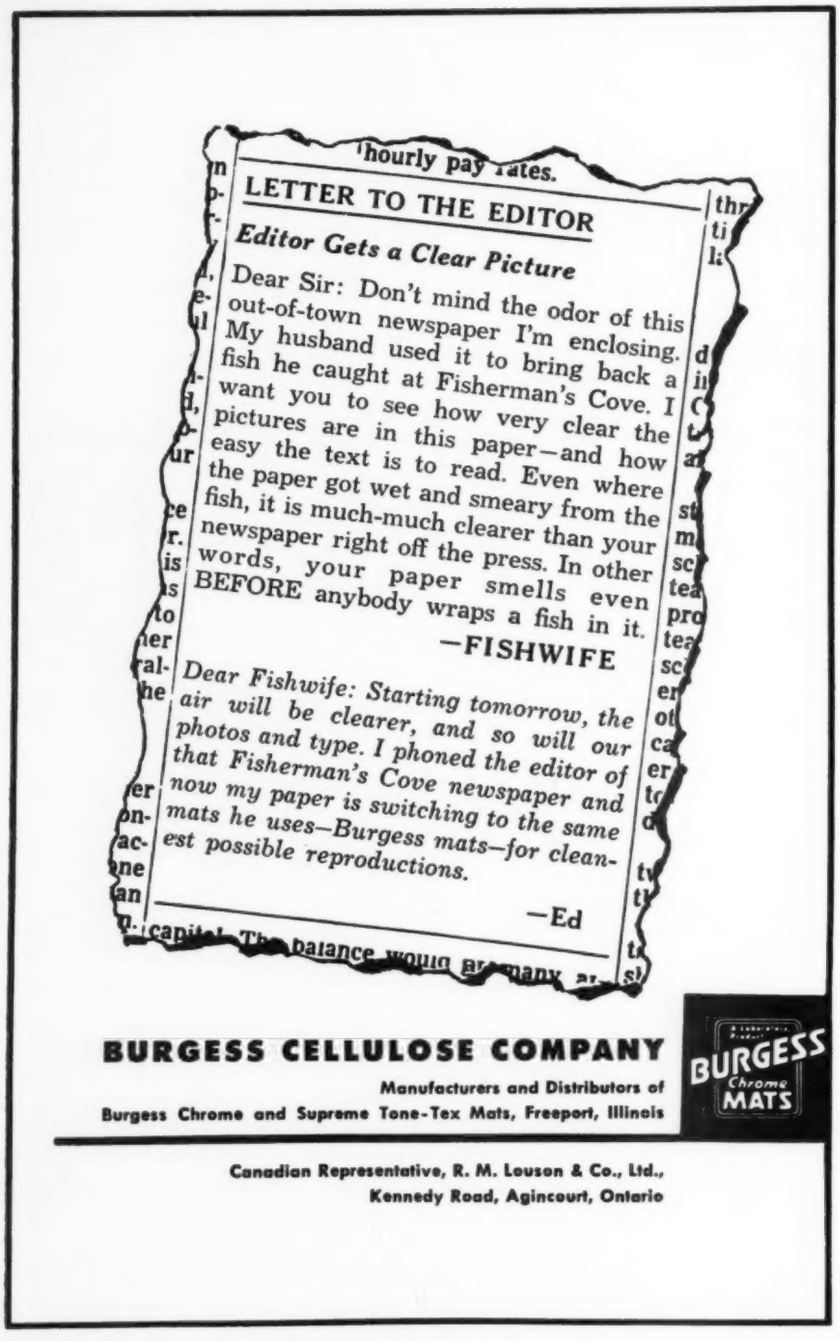
PNEUMATIC DRY POWDER OFFSET ELIMINATOR

To prevent undesired offset of printed sheets, this device sprays powder onto the sheets from a container in which the powder is agitated to form a mist or suspension in the container at a level above the normal level of the body of powder. A timed air valve is used to agitate and deliver the powder. Patent 2,850,214 by George F. Rooney, jr.

Printing Inks:

CONDUCTIVE INK AND ARTICLE COATED THEREWITH

While primarily used for printed electrical circuits, this ink possesses improved viscosity, tackiness and flow which make it better than present inks used for letterpress, offset, rotary or silk-screen


hourly pay rates.
LETTER TO THE EDITOR
Editor Gets a Clear Picture
Dear Sir: Don't mind the odor of this out-of-town newspaper I'm enclosing. My husband used it to bring back a fish he caught at Fisherman's Cove. I want you to see how very clear the pictures are in this paper—and how easy the text is to read. Even where the paper got wet and smeary from the fish, it is much-much clearer than your newspaper right off the press. In other words, your paper smells even BEFORE anybody wraps a fish in it.
—FISHWIFE
Dear Fishwife: Starting tomorrow, the air will be clearer, and so will our photos and type. I phoned the editor of that Fisherman's Cove newspaper and now my paper is switching to the same mats he uses—Burgess mats—for clean-est possible reproductions.
—Ed
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Manufacturers and Distributors of
Burgess Chrome and Supreme Tone-Tex Mats, Freeport, Illinois
BURGESS Chrome MATS
Canadian Representative, R. M. Louson & Co., Ltd.,
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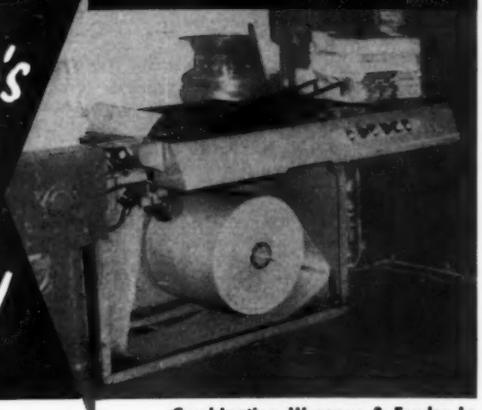
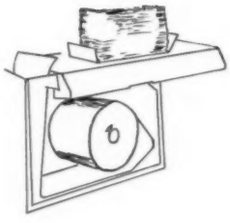
LOOK

Here's the NEW



Combination Wrapper & Feeder in use at the Philadelphia Bulletin

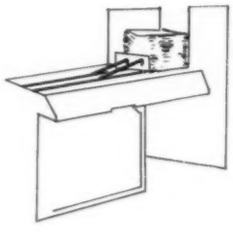
BULLETIN WRAPPER & FEEDER



Automatically wraps over 25 bundles per minute.

Bottom Wrapper Feeder

Accepts back-to-back bundle feed
Automatically spaces the bundles
Uses Kraft paper in rolls
Locates and cuts wrapper
Wraps 4600 bundles without refill
Completely safe and fully guarded



Feeds bundles as fast as tyer can produce

Tying Machine Feeder

Automatically locates bundle for tying
Produces single or double tied bundles
Automatically starts bundle tying machine
Low contour permits unobstructed view
Right hand or left hand models available
Used with any type of tying machine

The bottom wrapper feeder and the tying machine feeder are available either as separate units or as an integrated combination. Now you can automatically under wrap your bundles with Kraft and convert your manual feed tying machines to fully automatic operation. This equipment, developed and proven by the Philadelphia Bulletin is exclusively manufactured and distributed by

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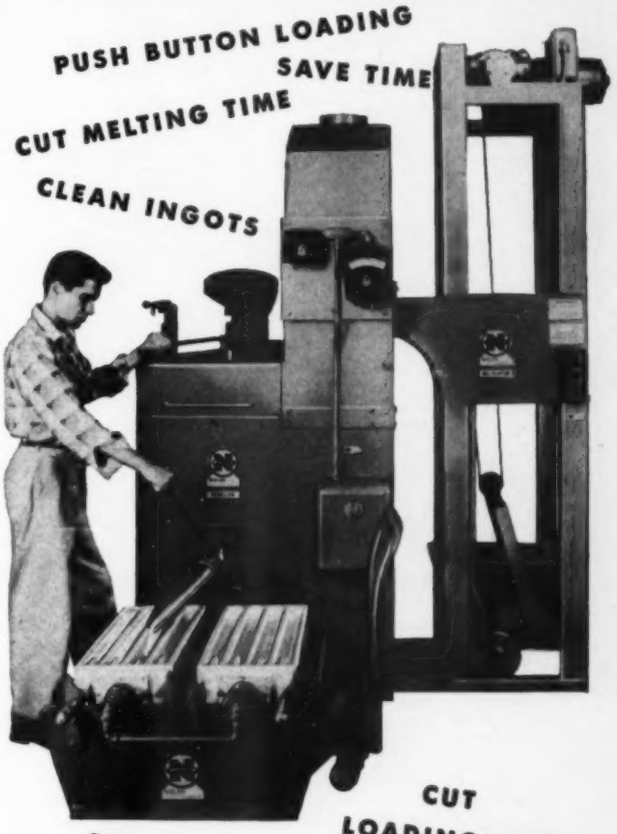
PUSH BUTTON LOADING
SAVE TIME
CUT MELTING TIME
CLEAN INGOTS



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CUT LOADING TIME

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New Heidelberg Cylinder—Industrial Stationery & Printing Co., Huntington Park, Calif., has installed a 21 in. by 28 in. Original Heidelberg cylinder press. Left to right are: Joe Pitchford, superintendent; Jack Rhine, press foreman; and Bill Terry, pressman.

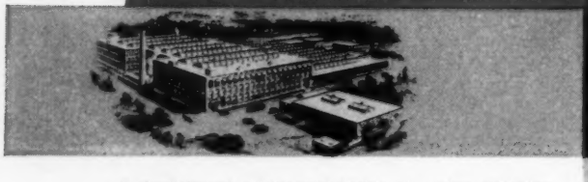
printing. It contains silver flake, a triallyl cyanurate polyester resin and an organic peroxide. Patent 2,851,380 by William L. Berlinghof, jr., assigned to Woodmont Products, Inc.

FLUORESCENT INK COMPOSITIONS

A fluorescent printing ink comprises a resinous pigment dyed with a rhodamine dye, a compound selected from the group consisting of 2,2′ dihydroxy naphthaldazine and yellow derivatives thereof and a vehicle, such as a printing ink varnish. The ink has improved light-stability and is intensely brilliant and day-light fluorescent. Patent 2,851,423 by Thomas N. Gaunt, assigned to Switzer Brothers, Inc.

Blankets for any Press Any Speed!

NEW ENGLAND NEWSPAPER SUPPLY CO.



- Regal Monocork and Mastercork blankets — for various combinations.
- Graylock top blanket — a new, improved advancement to newspaper printing.
- Red Rubber & Utility Foundation blankets assure the finest in print results.
- Plus Plain Felt, Coated Felt, Bay State and New Englander Blankets.
- Also equipment and supplies for Stereotype, Composing and Press Rooms.

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ED SPARKS

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Feeding, Folding, Delivery:

SHEET SEPARATOR

Suction sheet feeders or suckers have been simplified to function without the use of a cylinder and piston. This feeder has a rubber vacuum applying cup which will automatically contract toward its carrying arm when suction is created and it is sealed to a sheet, and will automatically expand away from the arm when suction is broken and sheet is released. Patent 2,850,279 by Stanley T. Stoothoff and Leo C. Williams, assigned to Miehle-Goss-Dexter, Inc.

FLEXIBLE SHEET CONVEYOR

In printing webs on high speed presses, this conveyor makes it possible to handle and cut the printed sheets without slowing down the printing step. The convevor speed is then slowed to a speed suitable for stacking the sheets. Patent 2,855,996 by Anton R. Stobb, assigned to Western Printing & Lithographing Co.

FLEXIBLE SHEET FOLDING MACHINE AND METHOD

Paper sheets are folded at high speed and without tearing for forming the pages of a book, magazine or newspaper by this machine. The machine provides for gripping the paper at one end and advancing it forward away from its source at a given speed and for further tucking and folding of the paper in an efficient and uniform manner. Patent 2,856,184 by Anton R. Stobb.

WORKPIECE FEEDING DEVICE

Sheets of varying lengths can be efficiently handled by this feeder by the use of a photocell which is so arranged that when the trailing edge of a sheet passes a predetermined point, the feeder takes the next sheet from the stack. Patent 2,856,187 by Alfred Burckhardt and Bruce E. Williams, assigned to Pitney-Bowes, Inc.

METHOD OF LOOSENING AND CONDITIONING SHEETS

Stacks of thin paper sheets which are difficult to separate and feed to a press are conditioned by subjecting them to a prescribed amount of moisture. The stacks

are then sealed in a vacuum chamber, where dry gas is introduced to effect separation or cockling of the sheets. Patent 2,856,697 by Hal F. Fruth.

FEED TRAY FOR DUPLICATING MACHINES

The side guides of this feed table may be moved to various positions and held there without the use of springs beneath the feed tray. The tray includes a mechanism for protecting the sheet feeding rollers and the tray from the wearing action of the feeder in the event the feeder continues to operate after all of the copy sheets have been removed from the tray. Patent 2,857,159 by Henry P. Keil, assigned to Fixture Hardware Corp.

SHEET FEEDER

As sheets are fed from a moving stream to a rotary press, this invention features the side registration of a sheet while the tail of a preceding sheet overlies the side registering point. Another feature is the use of the earlier side registration to increase press speed, increase sheet length, increase registration time, or decrease cylinder diameter, or to combine any of these advantages. Patent 2,857,160 by Jack E. Vandeman, assigned to Harris-Intertype Corporation.

SHEET FEEDER

This feeder is related to the structure covered by patent 2,857,160 by Jack E. Vandeman. The combination of parts, timing, etc., is engineered to effect the type of feed described in the above patent in a smooth and efficient manner without necessitating the use of rapidly operating parts. Patent 2,857,161 by Karl E. Kist, assigned to Harris-Intertype Corporation.

SHEET MATERIAL FEED CONTROL MEANS AND METHOD

To vary the linear speed or rate of feed of a sheet material, this device mechanically varies the effective diameter of a rotating feed controlling roll. An endless, elastic blanket passed around the roll is made to expand or contract by changing tension on the blanket. Patent 2,852,252 by Paul A. Sperry.

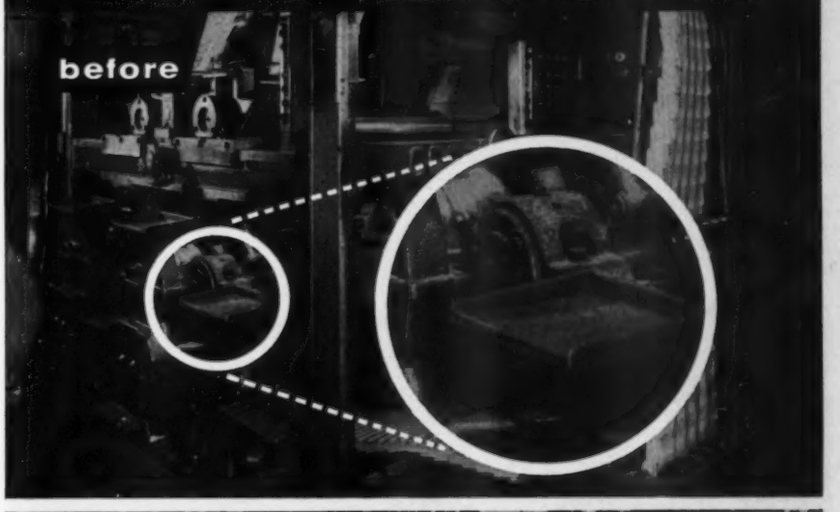
TIMED BOTTOM FEEDER

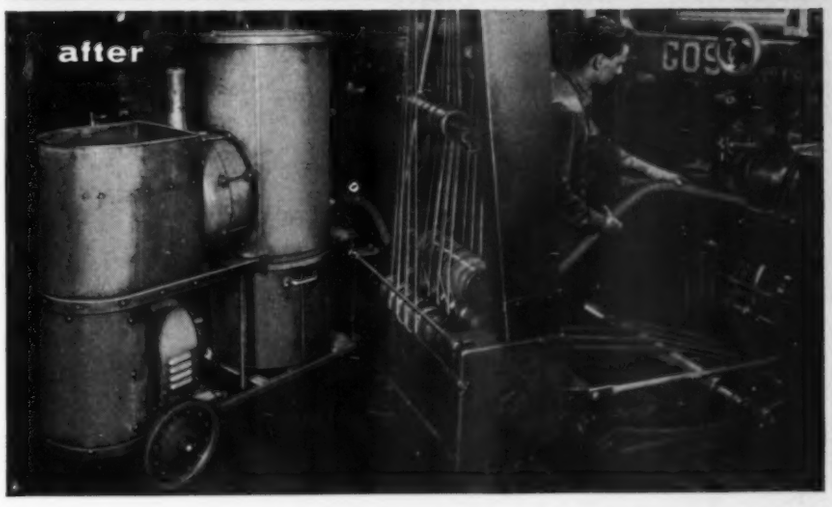
The feeder is of the type in which a blank is fed off the bottom of a stack and held from feeding by a gate operating very close to the rim of a supporting wheel having a uniform smooth rim throughout its entire circumference and in which the blanks are started by a continuous flexible belt. The belt has spaced apart pads adapted to frictionally engage the leading edges of the blanks to be fed. Patent 2,852,255 by Paul E. Fischer, assigned to E. G. Staude Mfg. Co., Inc.

ART OF DELIVERING FLEXIBLE SHEETS

This apparatus delivers flexible sheets from a web cut-off device to a stacker. It advances each sheet at high speed

INVINCIBLE VACUUM UNITS
Keep Press Rooms Dust-Free





Powerful Invincibles do a thorough job of cleaning newsprint particles and dust from newspaper folders after each day's press run. They prevent dust from impairing operation of folders and from clogging ink fountains on presses. They clean a folder in only 45 minutes. The unit pictured has been in daily use for 10 years; only maintenance has been replacement of vacuum hose. Unlike compressed air, Invincibles *collect* dust, prevent spread, permit easy disposal. Compact and portable, Invincibles can also be used for general maintenance everywhere in plant or office.

Check the Many Uses for Invincibles

Invincibles handle almost any material—liquid or solid—that can pass through a vacuum hose. They cost little, last for years. In 22 models from ½ to 7½ H.P.—the most complete line of heavy-duty industrial vacuum equipment. Resident engineers in all principal cities.

WRITE FOR BOOKLET—it tells about the many materials reclaimed or removed.

INVINCIBLE VACUUM CLEANER MFG. CO.
DOVER, OHIO

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while flat, then applies suction to convey them to a point where speed is slowed, allowing the sheets to overlap. It is especially useful in handling very thin sheets. Patent 2,852,256 by Everett S. Faulls and Kenneth A. Rusch, assigned to Milprint, Inc.

WORK HANDLING APPARATUS

This device is especially useful with a screen printing machine. It provides a conveyor with pressed steel stamped work-engaging clips. When in a certain position the clips close on the work. An increased number of prints can be handled on a length of the conveyor, stepping up the speed at which the printer is operated. Patent 2,852,257 by Paul A. Sperry.

TEMPORARY SUPPORT LAYBOY

Using wire clamps to hold a pair of sheets in spaced relationship to each other, this layboy forms a temporary support for lightweight sheets until the stack is removed without disturbing a new forming pile. Patent 2,853,299 by Peter J. Link and Douglas G. Nelson, assigned to Kimberly-Clark Corporation.

SHEET FOLDING MACHINE

Lengths of folds in a sheet of paper may be finely adjusted with this machine which has a rocking shuttle and carriage to push sheets into clamping members. The folder may be manually or power operated. Patent 2,853,293 by John P. Jones.

BUILT FOR PUNISHMENT ...AND PERFORMANCE!

When the going is tough, call for Tingue Contact Top Blankets —"Contact" has greater comeback ability and makes it more resistant to the costly, damaging effects of wraps and paper breaks. It is the most efficient blanket for advanced high-speed equipment—for superior printing, reduced offset and less ink accumulation.

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STREAM FEEDER DEVICE

By this invention, a continuous stream of overlapping signatures can be fed to a receiving conveyor while operating at relatively low speed. It uses a plurality of grippers which perform the feeding function while rotating continuously, thus eliminating an empty return stroke. Patent 2,853,297 by Harry W. Faeber, assigned to Time, Incorporated.

JOGGER MECHANISMS

A conveyor traveling around a curved guide deflects signatures and engages the overlapped pieces to drop them onto a moving platform. Movement is imparted by vibration to insure that the bottom edges of all signatures fall into registered contact with the platform. To insure registration, a second vibrator also jogs the signatures. Patent 2,853,298 by Harry W. Faeber, assigned to Time, Incorporated.

MEANS FOR FEEDING SHEETS IN LAPPED SEQUENCE

After a web has been cut into sheets, a series of tapes advances them at certain speed and spacing into a pair of sheet advancing rollers which retard the speed of each sheet. A series of idler rollers then rise intermittently into the path of the sheets, raising the leading edges above the rear edges of preceding sheets. Vacuum wheels then form a stream of overlapped sheets. Patent 2,854,236 by Christen R. Kaddeland, assigned to Miehle-Goss-Dexter, Incorporated.

COLLECTORS FOR COLLECTING PAPER SHEETS INTO PILES

A feature of this collector, for forming bundles or piles of sheets, is the use of more star-shaped disks than provided on similar apparatus, such disks being arranged on the shaft of the collector star. Fixed, slidable, rocking or other blades are provided on these disks and are moved by eccentrics or cams. The disks rotate at a different, *i.e.*, smaller speed than the collector stars. The bundle which is forming moves into a space which opens out in wedge shape. Patent 2,850,281 by Paul Heimlicher and Ludwig Vetter, assigned to Maschinenfabrik Winkler, Fallert & Co. A. G.

SHEET COLLATING MACHINE

The machine is capable of handling a wide variety of paper stock at high speeds and in the event of damage to a sheet or a misfeed, the machine will detect the misfeed and will endeavor to pick up the missing sheet. This is accomplished by allowing the machine to progress through three consecutive cycles of operation while the advance of other sheets in the

set is automatically retarded. Patent 2,852,250 by Harvey F. George, assigned to Davidson Corporation.

DEVICE FOR COUNTING AND BATCHING NEWSPAPERS

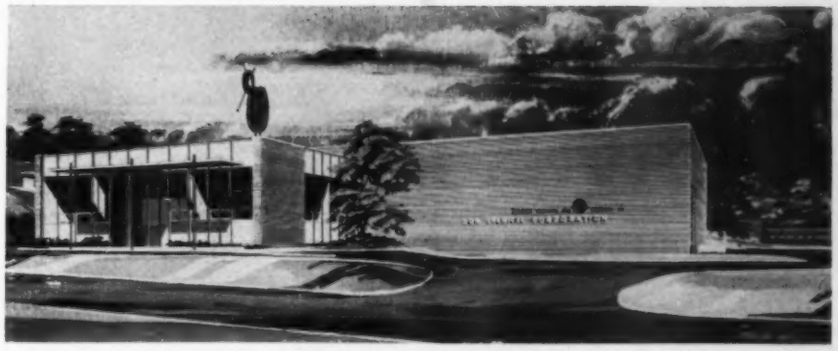
This fully automatic device delivers counted batches of newspapers or sheets as they emerge from a printing machine. It provides for counting the papers electronically, then conveying them to a handling or collecting point where they are grouped into quires, of 26 or 27 copies, and stacked or passed to a shipping point. Patent 2,852,990 by John E. Roe, one-half assigned to St. Clements Press, Ltd.

MECHANISM FOR SUPPLYING ENVELOPES TO PRINTING PRESS

A single operator stands in one position to empty boxes of blank envelopes onto the upper level of a two-tier conveyor which carries them to a press where they are printed and discharged onto the lower tier of the conveyor to be collected in the emptied box by the same operator. The feeder stops automatically if the feeding rate exceeds the rate of withdrawal of the envelopes. Patent 2,853,296 by Ross E. Skow, assigned to Walbert Machine Co.

CONSTANT TENSION FOR MATERIAL WINDING MECHANISM

By means of a variable ratio transmission, which is adjustable through a continuous range to maintain an input shaft torque to the transmission constant, this mechanism makes it possible to achieve a constant tension in material wound upon a roll. Adjustment is effected by a simple ring gear. Patent 2,852,130 by John H. Wallace, assigned to U. S. Electrical Motors, Inc.



GPI Will Build New Atlanta Plant—General Printing Ink Co. has broken ground for a new plant at Atlanta, Ga. Expected to be in operation in early 1959, the plant will include 14,750 sq. ft. of production, warehouse and sales office space on a 3½ A. site. Edwin R. Friese has been named general manager of the new operation.

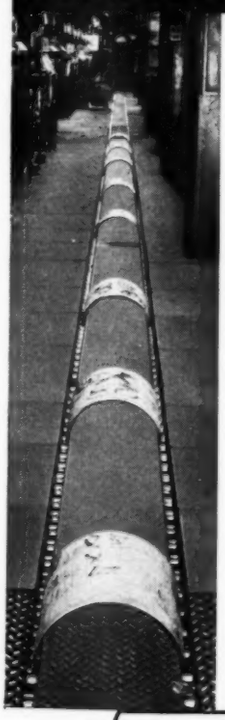
AUXILIARY TAG FEEDING MAGAZINE FOR PRESSES

This device is used for feeding shipping tags to the suction feed arm of printing presses of the "Kluge" type. It feeds the tags in fanwise arrangement to allow for more space required at the grommet ends of the tags, and in arcuate path to position tags at the front of the pack in the proper feed plane. Patent 2,851,269 by Carl E. Zook.

OPENING DEVICES FOR SIGNATURE-GATHERING

The machine is designed to operate on unlapped signatures, thus saving the expense of later trimming operations. An attachment, including a suction head, actuated by a rotary valve, cooperates with a transfer drum of a gathering machine to open unlapped signatures for placement of the signatures on a saddle. Patent 2,855,195 by Clarence R. Young, assigned to T. W. and C. B. Sheridan Co.

STEROPLATE DELIVERY...



SOONER, SURER, EASIER

with JAMPOL METHODS and EQUIPMENT

Typical of how Jampol newspaper handling methods can integrate operations in a plant is the Stereo Plate conveyor system illustrated.

With Jampol handling, you can always be sure of three things—even work flow for substantial savings in time and production costs... longer lasting precision-made equipment... and a definite competitive advantage in meeting delivery deadlines.

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Problem with ready answer

"I am convinced," says the business manager to the new stereo boss, "that much of what is called 'reader appeal' depends on stereotyping, especially on mats."

"Check," is the ready reply. "That is why I insisted, before taking this job, that I buy all the mats. My order for Certified Mats was made out this morning. I put Certifieds at the top for clarity, operating speed and freedom from trouble."

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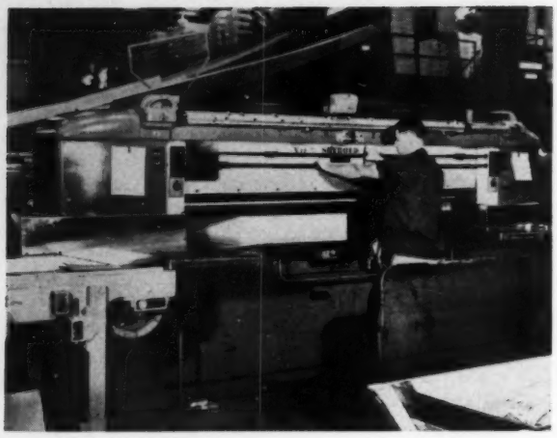

100 in. Trimmer on West Coast—Operator Carl German is shown using the new 100 in. Seybold full-hydraulic mill spacer trimmer recently installed at Potlach Forest Inc., Pomona, Calif. The trimmer will be used in the finishing room of Potlach's fine paper business.

APPARATUS FOR AUTOMATICALLY COLLATING SHEETS OF PAPER

Rotating units of suction or gripping rods are distributed to uniformly rotate around a perpendicular axis like a merry-go-round above a ring of storage and deposit tables, each having a number of suction or gripping rods operated in steps corresponding to the number of storage tables. Patent 2,856,183 by Rolf Lehmann.

Binding, Cutting, Perforating:

TRIMMING, CUTTING, CORNERING FOLDED PAPER ARTICLES

For use with high speed printing presses, wire stitching machines, etc., this attachment provides for automatically moving a stack of sheets into engagement with a trimmer for cutting one side of the stack, turning the stack to the opposite side for trimming, then, in succession, presenting the two ends of the stacks to the trimmer. Patent 2,850,090 by Hans Biel and Ernst Pfaffle, assigned to Hans Sickinger.

ARTICLE COUNTING AND COLLECTING MACHINE

Books being delivered from a binding operation are collected in stacks of a predetermined number by this machine which incorporates two containers each having a collecting zone for the books. An ejector for each container removes the books from each collection zone. The count is determined by the time it takes either ejector to travel from its starting point, through the zone and back to its starting position. Patent 2,854,900 by Paul E. Kleineberg and Joseph C. Roseman, assigned to T. W. and C. B. Sheridan Co.

GLUE TIPPING APPARATUS

A feature of this glue tipping machine, which is similar to the Forslund patent 2,753,836, is that the glue dots may be placed in any desired pattern as well as in a straight line. The irregular line of glue dots adapt the device for assembling calendars, Christmas cards, etc. Patent 2,855,892 by Carlisle G. Lea, Edvard M. Pedersen, and Lewis H. Bishop.

MACHINE FOR GLUING BOOK BACKS

Signatures are fed automatically into this high speed book gluing machine, which is capable of handling books of different thicknesses. The feeding and aligning mechanism uses a conveyor upon which a succession of books are supported on edge and moved along a predetermined path into cooperation with clamps. A wavy track on the conveyor imparts jogging movements to the book sections. The application of the present invention is a division of that originally filed on patent 2,697,236. Patent 2,858,007 by

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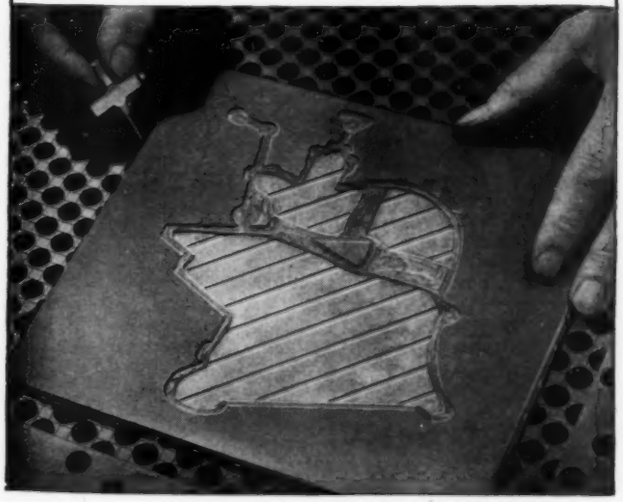

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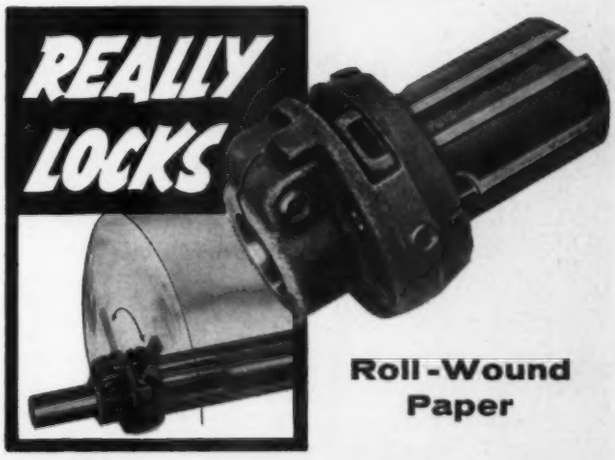

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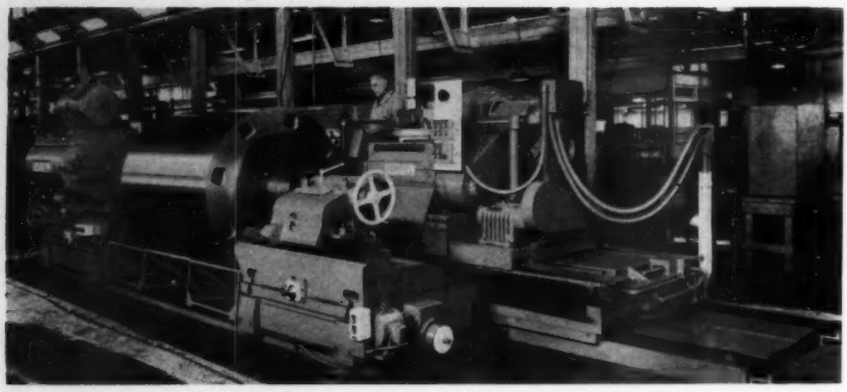

Grinds Press Cylinders to Close Tolerances—Precision finish is applied to a 9 T. printing press cylinder with this new cylindrical roll grinder recently installed at the Westerly, R. I., plant of Cottrell Company, Sub. of Harris-Intertype Corp. It is claimed that with this new $200 thousand machine tool, cylinders up to 12 ft. long and 75 in. diam. can be ground to tolerances of 0.0002 in., about one-tenth the thickness of a sheet of newsprint.

William W. McCain and Chester E. Hillman, entire interest in McCain.

MACHINE FOR FORMING HINGED JOINTS IN CASED BOOKS

Books travel through a joint forming machine in random spacing with their joint areas longitudinally aligned and exposed. Joint forming irons move into nipping contact with the book joint areas while moving forward at the same speed. There is no dragging movement between books and irons. High quality covers are produced at increased speed. Patent 2,853,725 by Robert L. Schoenberger, assigned to R. R. Donnelley & Sons Co.

SHEET BINDER

Stacks of sheets to be bound are moved along a horizontal, movable carriage into engagement with a drill which forms holes in the stacks; then staple-like fasteners are automatically inserted and clamped. Patent 2,850,927 by George G. Grinnell.

Miscellaneous:

NEWSPAPER STUFFING MACHINE

For assembling newspaper sections into bundles, this machine uses a plurality of open-top pockets differentiating from those of patent 1,951,300 in that the pockets are stationary and arranged in aligned series. One section is deposited in each open pocket and by the proper synchronization of the deposits and the movement of a conveyor beneath the pockets, the sections are properly assembled into completed bundles without any hand operations. Patent 2,856,182 by Ralph S. Cantrell.

WRAPPER APPLYING APPARATUS

A wrapper is infolded at one end and a magazine or pamphlet placed on it with an edge of the pamphlet inserted under the infold. Wrapper and pamphlet are then fed through a slot, between feed rollers, and into the jaws of a rotary carrier which carries both to a gluing station. After gluing, the rotary carrier puts its burden into an ejection station where rollers press the glue bearing flap against the wrapper body so that the magazine emerges fully wrapped and ready for mailing. Patent 2,853,839 by Alvin G. Herrmann, assigned to Contemporary Machine Designers, Inc.

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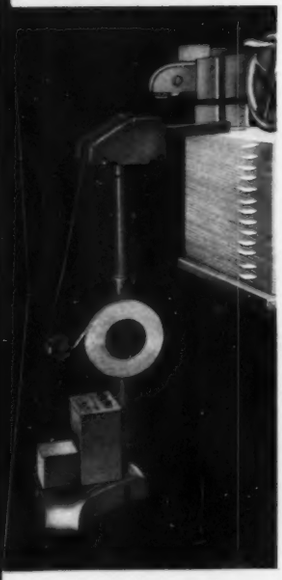

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Paper Behavior

(Continued from Page 50)

sible reaction with one or more of the chemicals used in the fountain etch. This means it should have a pH as near 7.0 as is compatible with the required sizing or coating. In uncoated papers a pH below 4.5 usually causes slow drying.

(4) If the pressroom is conditioned, the paper preferably should be conditioned to a slightly higher relative humidity, usually about 7% above the pressroom conditions.

Rotogravure Web Presses

(1) The filler, consequently the paper surface, must be free from grit which would tend to scratch the relatively soft engraved copper cylinders.

(2) All other mechanical requirements are the same as for rolls intended for letterpress or offset printing.

Mechanical Defect Troubles

Among the troubles resulting from mechanical imperfections in roll stock, regardless of the kind of paper, the kind of printing done on it, or the kind of press used, are the following:

Rolls that unwind unevenly, that is, with baggy ends or streaks, develop wrinkles when going through the press, spoiling the printing and frequently smashing the printing plates. Variation in tension due to hard and soft spots or soft or hard-end rolls results in mis-register, when two or more colors are printed and also causes defective folding.

When heat-set inks are used, a floppy web, due to poor winding, sometimes contacts the burners and causes a fire or at least scorched paper.

Web breaks, with consequent loss of production, are caused by defective splices, slime, spots, calender cuts, hair cuts and turn ins. With the press time costing from $20 to $60 per hr., the loss caused by the presence of such defects in rolls may easily mean the loss of all the profits on a job as well as late delivery of publications to the newsstands. Late delivery is often more serious than the monetary loss.

Stuck splices invariably cause web breaks. If the splices are too thick, the printing plates may be battered by the excessive pressure developed when they pass between the plate and impression cylinders. If this happens, a shutdown for plate repairs or replacement is necessary.

Too much overhang at the first edge of the splice entering the press may result in the excess paper folding back over the splice, with the same effect as a thick splice; at times this overhang results in a web break, particularly on rotogravure presses.

When heat-set inks are used, the overhang may flare out from the web and catch fire as it passes the burners. At best, this makes rewebbing the press necessary, causing a delay of half an hour or more, according to the damage done.

When a splice goes through a multi-color press, the printing frequently fails to register until the splice has gone completely through. An excessive number of splices,

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even though all are properly made, results in excessive waste. This is particularly true in multi-color rotogravure printing. Changing the press speed changes the tension on the web, with consequent mis-register of colors. Each splice in a roll of paper used on a multi-color rotogravure press results in an average loss of 60 linear ft. of the web.

Loose scraps of paper wound in rolls tend to batter the plates and as a rule also cause web breaks. At best, such scrapes cause from 10 to 20 min. loss of press time, and when the plates are battered hours may be required for repair or replacement.

Roll Paper Moisture

The moisture content of roll paper need not be in balance with pressroom conditions. In fact, a relatively low moisture content is desirable, especially if the printing is done with heat-set inks. It has been found that a maximum moisture content of 4.5% is best. Moisture lower than 3.5% may result in the paper being too brittle, causing web breaks. Higher moisture results in excessive shrinkage in the heaters with consequent mis-register, either of colors, or between pages on the two sides of the web. Also, additional heat is required to evaporate the excessive moisture, which may cause scorching of the paper or blistering of the paper surface.

Even on presses using little or no heat, as in the case of the newer rotogravure presses, too much moisture will result in shrinkage of the web as it goes through the press. In general, a moisture content of 4.5%, as stated above, will yield the best results.

In flat stock, mechanical deficiencies result in lost time and production. If the paper is not flat, it will neither feed nor deliver properly. Cockles and wrinkles cause some feeder trouble, but most of the trouble is mis-register in spots when multi-color work is being done. Excessive cockling may also cause wrinkles when the paper goes through the press.

Paper having a curl on either side causes trouble, if both sides are printed. Label papers, which are printed on one side only, may be permitted a slight curl to the non-printed side, but none to the printing side.

Torn and short sheets interfere seriously with the action of automatic feeders. When they get in the press, battered plates usually result.

(Series Concluded)

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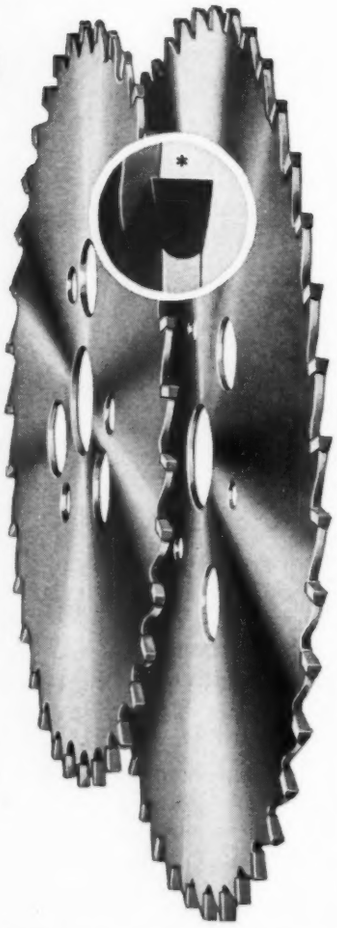

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PIA Production Conference

(Continued from Page 36)

Inc., on the new photopolymer plate (see PRINTING PRODUCTION, Nov. 1958, P. 25).

Trends in the Industry

What Does All This Mean?—was the appropriate title of an address by J. Homer Winkler, Battelle Memorial Institute, Columbus, O., the final speaker. He cited a number of trends in the printing industry based upon developments which have recently taken place.

Winkler predicted that the multi-process plant of the future will have a single camera and platemaking department serving all processes. Tied to this, he thought it may not

be long before copy and art in mechanical paste-up form are prepared in the same manner for all printing processes.

Referring to the size of future printing plants, the Battelle executive said that the small plants of today are likely to be larger tomorrow and still rate as small plants. He added: "As we move toward a higher degree of automation, plant investment is bound to increase."

He forecast that present printing plate manufacturers will recognize that they are just that and not exclusively electrotypers, stereotypers, or photoengravers. They will make good printing plates by any of the new processes utilizing such materials as have been developed, he said.

On the acceptance of new production methods, equipment, and materials, he said it is largely a matter of management. There will be a need, he thought, for personnel with a greater amount of technical training in the near future. With the right kind of management and equipment, they will produce at a rate far above what we have at present.

Metal Type Will Stay

Winkler said he does not believe that phototypesetting will replace the use of metal type. He added it would be a mistake to say that the entire future of printing depends on photography.

The trend in future rotary presses will be toward a complete perfecting web process rather than rollfed presses that sheet before printing. In the presses of the future, control of variables such as positioning, color register, web tension, etc., will be automatic.

Winkler concluded that it will be necessary for printing management to pay more attention to long range planning within the industry. He said many policy decisions regarding equipment, facilities, and methods will have to be made in the near future.

It was announced that the Fifth Production Management Conference has been scheduled for June, 1960. The exact location and dates will be announced at a later date.

Plant Production Meeting

(Continued from Page 29)

individual familiar with all operations in the plant. He must also have available up to date production performance records.

And where does he get these records? From a department possibly supervised by a management engineer. This department function is to record from the daily time tickets production as it happens in the plant. These reports should show average makeready time, running speeds, direct and indirect labor, rework and spoilage.

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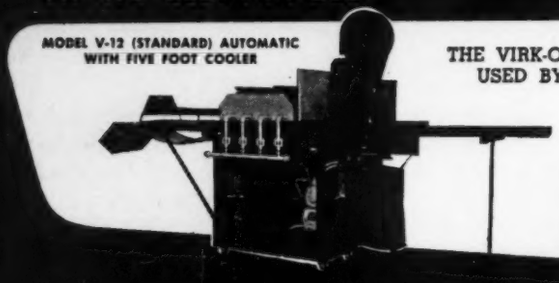

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Helpful Literature

(Continued from Page 22)

Miscellaneous

GROUNDWOOD CONTENT PAPERS

Minnesota and Ontario Paper Co. offers literature describing features of its groundwood content papers, Mandoweb and Milliweb, including opacity, brightness, bulk, color, and punching and perforating. Circle No. 343 on Reader Service Card.

ANCHOR GRAPHIC ARTS CHEMICALS

Anchor cleaners, detergents, solvents, ink removers, washes, adhesives, oils, lubricants, static eliminator and waterless hand cleaner are described in a booklet offered by Anchor Chemical Co. Circle No. 319 on Reader Service Card.

DREISSIG BRONZING MACHINE

Descriptive literature on the Dreissig Bronzing Machine Kombi 10V is offered by Henry P. Korn. This machine contains 10 dusting bands, 10 burnishers and 4 dusting-off rollers and will take up to a 52 in. by 76 in. sheet. Circle No. 320 on Reader Service Card.

VANDERCOOK TEST PRESS

The Vandercook Universal I test press is described and well-illustrated in a six page brochure offered by Vandercook & Sons Inc. Features include 15 in. by 22 in. max. form size, and automatic ink feed and washup. Circle No. 310 on Reader Service Card.

BAHNSON UNIT HUMIDIFIERS

The Bahnson Company has published a booklet describing advantages of using Bahnson unit humidifiers, entitled *Humidification in the Printing Industry*. Circle No. 330 on Reader Service Card.

ALGRIP ABRASIVE FLOOR PLATE

A pamphlet describing A. W. Algrip abrasive rolled steel floor plate is offered by Alan Wood Steel Co. Abrasive is rolled into steel plate to a controlled depth. Circle No. 337 on Reader Service Card.

BOOKLET ON STRETCH PAPER

West Virginia Pulp and Paper Co. is offering a 12 page booklet in which is explained the processing, characteristics, and applications of its Clupak, or stretchable, paper. Grocery check out bags and mailing wrappers are among suggested applications. Circle No. 306 on Reader Service Card.

PORTABLE CLEANERS BULLETIN

A six page bulletin provides illustrations and specifications on various Ace-Sycamore Inc. hand portable cleaners for blowing, vacuuming, spraying and air-sweeping applications. Circle No. 309 on Reader Service Card.

GIFFORD-WOOD HANDLING SYSTEMS

Gifford-Wood Co. offers a brochure describing its engineered materials handling systems for moving newsprint rolls or stereotype plates. Circle No. 321 on Reader Service Card.

RAISED PRINTING SAMPLES

Samples of raised printing produced on Virkotype equipment are available from Virkotype Corporation. Information concerning equipment, compounds and inks is also included. Circle No. 351 on Reader Service Card.

STORAGE CABINET

A cabinet with 25 drawers for storage of art work, engravings and blue prints is described and illustrated in a catalog offered by Foster Manufacturing Co. Circle No. 352 on Reader Service Card.

MEAD DESIGNS NEW SAMPLE BOOKS

Mead Papers Inc. has utilized typographic design on the covers of 22 new sample books to illustrate the relationship between its various grades of paper and yet clearly identify each grade itself. Circle No. 349 on Reader Service Card.

MOISTURE MEASURING INSTRUMENTS

The Cambridge paper hygroscope and the Cambridge printer's moisture indicator and their uses are described in a bulletin offered by Cambridge Instrument Co. Circle No. 315 on Reader Service Card.

LINK-BELT CHAIN DRIVES

Link-Belt Company offers catalogs on its various chain drives for the Graphic Arts industry, including heavy-duty silent chain and roller chain. Circle No. 332 on Reader Service Card.

SCREEN PROCESS SUPPLY CATALOG

A screen process supply and equipment catalog is being offered by Atlas Silk Screen Supply Co. Twenty-five pages are devoted to equipment. Other pages list silks, inks, stencil films and squeegees in Catalog No. 136. Circle No. 350 on Reader Service Card.

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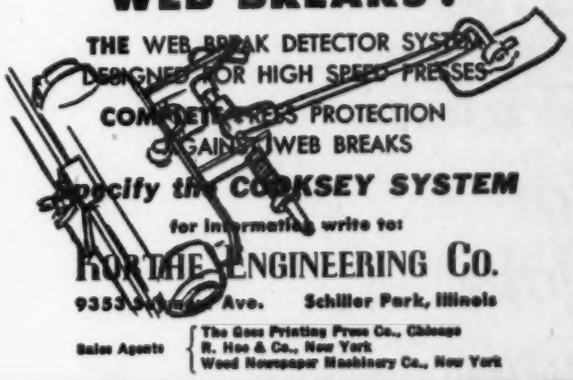

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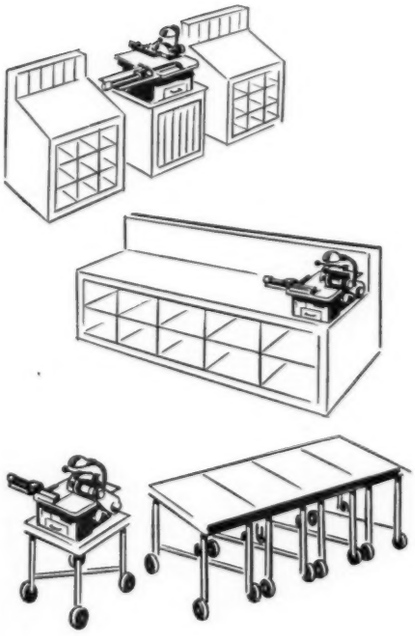

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